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ABSTRACT

This book is intended to help instructors construct reading tests. All the chapters are concerned with viewing two complementary aspects of the written text materials that is used as the base for testing: (1) the relations that hold among the parts of a written text that occur together; and (2) the fact that each word in a text plays certain roles in the language as a whole and is subject to certain restrictions on how it can be used in any text of the language. These two aspects of language are basic to modified cloze test building and modified miscue test building, the kinds of tests treated in the chapters in this book. The following topics are developed: (1) cloze testing and reading; (2) building a group test; (3) interpretation of test results; (4) teaching strategies related to a reading test; and (5) building an individual test. The appendices include a sample passage, samples of construction worksheets, and the passages used in constructing the sample cloze tests. A bibliography is included. (AMH)

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Papers in Applied Linguistics

LINGUISTICS AND READING SERIES: 3

Assessing Comprehension in a School Setting

by Thomas Dieterich, Cecilia Freeman, and Peg Griffin

edited by Peg Griffin

Roger W. Shuy, General Series Editor

U S DEPARTMENT OF HEALTH, EDUCATION & WELFARE NATIONAL INSTITUTE OF EDUCATION

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Preface

The important relationship of linguistics to reading has long been recognized, but seldom has it been adequately exploited. Many linguists feel that when people read, they call on what they know about language form and use in ways which we, as yet, little understand. Many reading specialists, likewise, feel that reading is some type of language processing operation in which the language takes the form of print on the page. Although both the fields of linguistics and reading are concerned with meaning, there has been little sharing of ideas across the fields. A great deal of mutual focus, in the past, has been on letter-sound correspondence. This focus has led many teachers to consider the contribution of linguistics to be little more than phonology. Some reading people, in fact, erroneously think of this contribution as "the linguistic approach."

As the title indicates, this series is dedicated to the bringing together of linguistics and reading. It is intended to present both technical and practical matters which contribute to the comprehension of the printed page. The various issues in the series will be theme oriented, centering around a specific concept or approach from which both the fields of linguistics and reading can benefit. The ultimate goal of the series is to open insights about reading to linguists and insights about linguistics to reading specialists.

Roger W. Shuy
March 1977

Introduction

This book is about testing the reading abilities of students. Like many pieces of written discourse, it has some particular characteristics due to the beliefs of the authors and to the history of its development. In this introductory section we sketch these beliefs and the history, as well as provide a roadmap which can serve as a guide to reading this book.

We believe the key factor in the success of a program of reading instruction is that the instructors be actively engaged in its creation and evaluation, as well as in its day-to-day implementation. Not tests, not texts, but teachers are the most important part of the program--teachers who must actively engage themselves in the program. It just does not work to simply hand out textbooks and/or tests, to convince teachers to use them to train teachers in their use, and to monitor teachers' classrooms to insure that they are being used properly. Teachers cannot be merely retailers--getting supplies from the education industry and servicing student consumers.

There are two fundamental reasons for our belief that teachers must be engaged in the reading program beyond a retailer role. First, we know that reading research is just beginning to address some very important issues. There are some basic unknowns about what reading is--what it is that the children do when the instructional program succeeds--and there are many unclear aspects of theories about how people learn to read.* If there are still theoretical problems involved with defining and describing reading and the learning of reading, then it is impossible to have faith that any particular tests, texts, or techniques should be stocked by teacher-retailers and then sold "over the counter" to student consumers.

Secondly, even if the theoretical problems were to disappear and reading researchers were to unite behind a compelling model of the reading process and of the learning-to-read process, we believe the teacher would still have to be more than a retailer. From our awareness of the everyday complexities of reading and learning to read in a classroom setting, we feel that teachers need to be actively engaged in the creation and evaluation of the instructional program in reading because of the multitude of on-the-spot decisions they have to make every day--decisions necessitated by individual student variation and by the many different situations where reading learning and teaching occur in the school setting. For example, take the following cases:

- a teacher has to decide what a child returning from an absence can best do to "make-up" his work--how much can be skipped, what can be peer taught, what can be learned independently, how the teacher can re-arrange the day's plan to give some individual attention.
- a teacher has to decide which cultural and language differences among the children in her class demand different kinds of preparation for a certain reading activity and/or which differences demand that she interpret the children's work differently for a certain project or story.
- a teacher has to decide how the reading and reading learning that occurs during the science period can be integrated with the instructional programs of both the science curriculum and the reading curriculum.

If teachers are actively engaged in creating and evaluating the instructional program in reading, then these decisions can be made with confidence, using information made available from the work involved with devising the program in the first place. Furthermore, activities following from these and similar decisions must be

*But see Wanat, 1977a and b.

viewed as part of the instructional program, and certain program outcomes (whether successes or failures) might be related to a series of these on-the-spot decisions rather than being erroneously attributed to some static feature of the program.

This book is meant to help instructors build reading tests. We believe that both the process of building the tests and the tests that result as the product of this process are important. When instructors from a grade level, a specialty field, a school, or a school district work together to build a test and use this book as a resource, there is going to be a lot of discussion, thinking, and, perhaps, arguing. The members of the working group will be examining new and old ideas about reading, about language, about learning, and about testing. Most people who teach reading can feel quite confident about the accuracy of impressions they have about children who are reading with no problem and others who do have a problem. They base these impressions on information about, and experience with, reading and learning to read. But these same people know there are some cases where they cannot count on their intuitive, holistic impression about a child's reading ability. Dealing with the ideas about reading and testing presented in this book, while working with others involved in building reading tests, gives teachers a chance to focus on, re-examine, clarify, and bring unity to the pieces of information and experience about reading that they are always gathering. Making explicit some background assumptions and explaining and defending some instructional practices to others working on building a test can make the issues clearer and more available for appropriate use in instruction. Too often there is either no forum for such discussion and growth or the only forum is one where an expert, brought in for a short workshop or an extension course, holds the key to the "correct ideas" and stifles real active engagement with issues about reading by the teachers involved. The process of building reading tests is important just because it can provide a forum for reading teachers to actively engage in discussions with each other about reading issues.

We also believe the products--the reading tests that this book can help build--are important. Even though there are many (perhaps too many) reading tests available, a lot of teachers find that it is still difficult to find an instrument that will fit into their instructional programs. School reading instruction has as its most general goal that children will be able to understand complete written texts of a variety of types so that they may enjoy or use the information for a variety of purposes. To construct an instructional reading program that will meet this goal, it is necessary to determine how close students are to the goal and in what ways instruction can intervene to bring the students closer to it.

Some tests currently available are not useful because they focus more on individual words and/or specific sub-skills which do not "add up" to the whole act of reading. Tests built according to the procedures described in this book focus on how the reader understands complete written texts. Some other tests fail to be useful because it is hard, if not impossible, for teachers to discover how the test results for a particular child point out the kind of instructional strategy that will be useful for that child. The tests built according to the procedures described here are intimately related to instructional practices.

Another problem teachers have arises when they try to fit some currently available tests into their instructional programs--programs that tests have not caught up with. Reading programs are becoming more and more responsive to the variety of texts that students must be able to deal with; it is not unusual for an instructional program (or some segment of one) to deal exclusively with texts about cosmetology or natural science or economics or metal work. The kind of written language that is the basis of a particular instructional program may be very different from the kind used in the passages on a test. Furthermore, the kinds of comprehension skills that some tests focus on may be the less important ones from the viewpoint of some of these new, specialized, functional literacy instructional programs. Newer instructional programs are also sensitive to whether the texts used in reading instruction are situated in the context of the learners' experiences; the instruction is aware of and responsive to cultural and value differences among students that may affect the students' response to a piece of written discourse. Many available reading tests have been shown to be culturally biased. Tests constructed in

the fashion described in this book can be as responsive to variation in textual material and variation among learners as are the teachers who use this book in the process of constructing tests.

We have tried to prepare this book so that it can be used in several different ways. There is no doubt that *working* with the chapters requires just that--a lot of thoughtful work. Each reader will find some places where too many new ideas are brought up, some places where uncommon terms occur often, and many places where "reading" means to stop reading and try doing what is being described. In fact, if anyone finds this book good to read cover-to-cover without stopping to argue with it and without trying to work out some problems, then we will have failed in our purpose. We are convinced that working hard is familiar to teachers and that they have the capacity and the will to do so.

In order to counter-balance these demands on the reader, we have tried to incorporate three features in the chapters that follow: (1) there is a minimum of jargon, (2) there is a good deal of redundancy, and (3) there are alternative orderings of the chapters that can provide different accesses to the book for readers who have different initial interest. We avoided linguistic jargon because too few people are comfortable with it and because the level of precision needed for our task made many specialized terms unnecessary. We also avoided educational jargon not only because we were uncomfortable with it but because much of it seemed unnecessary for our task. The redundancy and the alternate orderings work together. If a reader decides to start with Chapter III, and then reads Chapter I, he will find some of the same ground covered in a somewhat different way in both chapters.

While each chapter has a different focus, some basic issues are treated in all of them. All of the chapters are concerned with viewing two complementary aspects of the written text material that is used as the base for testing. First, each word in any given text is related to preceding and following words in the same text, that is, there are relations that hold among the parts of a written text that occur together. These relations are what we consider in order to devise what we call Structural Categories. To oversimplify, the pieces of a text are like dominoes: it is possible to understand how one particular word functions in a text only if we also understand certain other parts of the text that the particular word is related to. Second, each word in a text plays certain roles in the language as a whole and the role (or Part of Speech Category) that the word belongs to carries certain restrictions on how the word can be used in any text of the language. We rely on these two aspects of language, sometimes called the syntagmatic and the paradigmatic, for both the modified cloze test building and the modified miscue test building. All of the chapters are reports related to our experiences in building these kinds of tests.

In order to further discuss the redundancy and alternate orderings involved, we should digress and provide a map to the chapters. Chapters I through IV deal with group silent reading comprehension tests and with modified multiple choice cloze procedures; Chapter V focuses on oral reading testing and comprehension and on modified miscue analysis. Specifically,

- Chapter I provides background material on cloze procedures and on issues in reading, as well as an introduction to the test we constructed.
- Chapter II provides detailed directions for the procedures we used to build our test and includes some second thoughts about variation on these procedures.
- Chapter III reports on the test we built from the point of view of what the test revealed to us about the test-takers.
- Chapter IV makes explicit the kinds of instructional implications that follow from this kind of test.
- Chapter V shows how the categories used in test building for group testing can be used in an individual oral testing situation in the framework of miscue analysis.

A teacher whose first question is, "Will this project amount to anything that is relevant to what I do with the children on Monday morning" should read Chapter IV first and then go to the other chapters for more information. A teacher who

wants most of all to know how this work related to other work in reading should start with Chapter I. A third teacher might be interested most in what kinds of observations can be made about particular children's strengths and weaknesses and should start with Chapter III. Still others might want to just see how to construct a test, and they should start with Chapter II. Teachers primarily interested in oral reading will want to go directly to Chapter V, but they will find themselves referred back to other sections. If there is a group reading this book, members may choose to become specialized resources on various sections, relying on group discussion to fill in or expand some of the issues.

Given this state of affairs, the first instruction to teachers might be to tear apart the binding and re-arrange the book to suit yourself. There is sufficient redundancy to allow you to start with any chapter and sufficient cross-referencing to entice you at least to skim the rest. Do whatever ordering you like, even the one provided--I, II, III, IV, V--is a possibility.

The most important instruction is this: please do not construct a test that is exactly like ours, but please do go through the work of constructing a test like we did. We did not want to publish our test. We feel there is more to find out about the reading abilities of students than our test, or any test, can provide information on. Teachers doing what we did, building tests, can use some of the techniques we used, and they can consider some of the information about language and reading and testing that we provide. But if they add their own techniques and information and variations growing from thinking about (perhaps disagreeing with) what we provide, then there is more of a chance of finding out about students' reading abilities.

We would like, in fact, to know about some of the variations and techniques and information that readers develop while working with this book, and we invite you to correspond with us individually or as a group. The work on this book and on the test building it refers to was a cooperative effort, but some pieces of work bear the hallmark of individuals. Thomas Dieterich, Cecilia Freeman, Peg Griffin, and Nancy Yanofsky developed the categories and worked them out on more than two dozen passages. Elizabeth Flach and Janet Fredericksen provided the readability level information on over a hundred passages. Robert O'Reilly, Carl Fredericksen, and Jean Gilliam stimulated our interest in applying our linguistically derived information about reading and language to modified cloze comprehension tests. The general interest of the Montgomery County Public Schools in developing instructionally relevant testing procedures provided an impetus for our work and partial monetary support for carrying it out. The writing of all of the chapters was a cooperative venture by Dieterich, Freeman, and Griffin, with Dieterich having primary responsibility for Chapters I, II, and III, Freeman for IV, and Griffin for V and the Introduction. Important assistance in completing the tasks was provided by Steve Cahir, Ruby Berkemeyer, Peggy Good, and Cherie Winkler, as well as by Marcy Taylor of the Center's Publications Program, who did the final copy editing and managed the various production stages required for publication. We would also like to express our gratitude to all who helped us, including the family members and co-workers who acted as trial subjects.

P. Griffin
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Chapter I: Cloze Testing and Reading

1.0. INTRODUCTION

The purpose of this chapter is to explain how the test that we constructed functions as a test of reading comprehension. We will discuss what kind of information the test results can provide and what the test results mean in terms of various views about the nature of the reading process. We will describe the linguistic principles and the view of reading that led us to construct the test as we did, and we will discuss the consequences for the test of other views of reading distinct from the one that informed our test construction.

In 1.1 we will tell about the ancestry of the present test and how tests of this general type measure reading comprehension. In 1.2 we will describe a general controversy among reading researchers concerning the nature of the reading process and the source of reading problems. 1.3 will describe the test construction and the important motivating factors behind that test construction. 1.4 will deal in detail with what the test can tell us about reading comprehension skills, particularly how the test results could be interpreted in the light of various conflicting views about why some children have reading problems. In 1.5 we will discuss the test's possible instructional consequences: what can the test results tell us about organizing instruction to deal with an individual's reading difficulties and how do the instructional consequences differ on different views of reading problems?

Of the two views of reading to be described, our test construction is more amenable to one view than to the other. The information provided by the test results is more informative if one view is correct than if the other is. Nonetheless, we do not intend to argue for one position over the other, and we certainly do not claim to be providing evidence in either direction. Rather, this chapter is a conceptual chapter, trying to specify how our test fits in with various views on one side of the controversy, and with various views on the other side as well.

1.1. THE MULTIPLE CHOICE CLOZE TEST AS A TEST OF READING COMPREHENSION

1.1.1. How do cloze tests test reading comprehension? Generically, the present test of reading comprehension is a modified form of a cloze test. Though the modifications made in the cloze test format are fairly extensive, the test still shares some of the characteristics of cloze tests as instruments for measuring reading comprehension. It will therefore be worthwhile to say a little about how cloze tests test comprehension.[1]

The cloze procedure was introduced by Taylor (1953) as a means of testing the readability level of text. The procedure has been used as a means of testing readability, foreign language competence (Bondaruk et al., 1975), and reading comprehension. We are concerned here with the use of the cloze in comprehension testing.

How does the cloze procedure test reading comprehension? From the point of view of linguistics, cloze tests are particularly appealing as a means of testing the comprehension of text because they call on the person taking the test to utilize the constraints of language in order to perform the testing task. We will elaborate on this important property of cloze tests.

We may take it for granted that there is *redundancy* in written and spoken language, in the following sense: if a word is deleted from a text or spoken conversation, not just any other word can be inserted to take its place. When linguists study language, the "grammatical rules" they propose can be seen as explicit statements of what words or groups of words can go in particular contexts. Traditionally, the sentence has been the context studied by linguists, and an immense amount of

work has been done attempting to specify syntactic and semantic constraints on how words go together to form sentences. More recently, linguists have also begun to study context beyond the sentence level, to try to specify constraints having to do with coherency and theme of the text, and consistency with known facts about the world and with the conventions of ordinary language usage. All these rules and constraints just specify what we, as speakers of English, know about our language and how to use it.

In a conversation, if a word or a few words are garbled, or obscured by noise, we will still have a pretty good chance of getting the meaning by using the surrounding, ungarbled context, together with our knowledge of the rules and constraints on what words can appear in that context. Likewise, if words are deleted from a written text, we should be able to recover those words in the same way, provided *we have read and understood the text*. This, then, is the rationale behind the use of the cloze procedure in assessing reading comprehension: if a reader understands the structure and content of a written text, then he should be able to utilize the redundancy in that text to retrieve deleted words at a better than "chance" level

1.1.2. A comparison of the cloze with standardized reading comprehension tests. Cloze tests have some advantages over traditional standardized multiple choice tests of reading comprehension.[2] In such standardized tests, children are required to read passages and answer questions about them. What questions are posed depends on the test-maker's subjective judgment about the meaning of the passage, about what is important in the passage, and, usually, about what a reader should be able to infer from the passage. The child is required to read the question, as well as the passage itself, so such standardized tests assess not only the child's comprehension of a specific passage, but his comprehension of the test questions as well, and there is little, if any, control on the form and complexity of the questions asked. Cloze tests do not require the test-makers to write comprehension questions. Thus, they avoid setting the child the extraneous task of reading and understanding such questions, and also avoid dependence on an individual test-maker's subjective judgments about what the passage "really means"--judgments that may vary from one test-maker to another. The task that a cloze test requires of a child is thus more closely tied to understanding the content and structure of the passage itself.

Standardized reading comprehension tests tend to emphasize a child's general verbal ability over his specific ability to understand the content of a particular passage. To a considerable degree, performance on these tests depends on a child's ability to reason and make inferences. Now undeniably, such reasoning is a part of what one does in using reading as a tool, e.g. in learning about geography or reading a mystery novel. But there is serious doubt that we should measure a child's general reasoning abilities in a test that purports to measure his reading ability. If these factors can be separated in testing, they should be. Cloze tests, with their passage dependence and their emphasis on processing the structure and content of the text, seem to come closer to assessing comprehension independently than do standardized reading tests.

1.1.3. Cloze tests and reading skills: a controversy. Under one theory of reading, the task involved in the cloze test--predicting words from context--is very similar to the principal task required in proficient reading. If this theory is correct, then cloze tests have one property that is nearly ideal in a reading comprehension test: they simulate (and so test proficiency at) one of the very tasks involved in reading itself.

Now there are other views which hold that the task of making predictions from context is not of such crucial importance in natural reading. This is an important controversy, and it bears on the central topic of this booklet: how does the testing task required by our revised version of the cloze test relate to the skills and activities involved in natural reading? We will return to these issues in 1.2, 1.3, and 1.5 below.

1.1.4. A revision of the cloze: content word deletion. In the classic cloze procedure, a mechanical rule is followed to choose words for deletion: every fifth word is deleted, no matter what that word is. This is certainly an objective procedure, but it gives rise to some problems in cloze testing.

Cloze tests have been criticized on the grounds that they only test the proces-

sing of very local contexts; some investigators claim that all the information useful for retrieving a deleted word comes from the immediate vicinity of the blank (five words on either side). It is sometimes claimed that cloze tests of reading comprehension emphasize local, intrasentential, syntactic constraints within a text, and do little to show us whether the reader has gained an overall understanding of the content of the passage.

Studies have been done on the effect of deleting only "content" words in a cloze test (that is, only nouns, verbs, adjectives, and adverbs). Results of such studies show that content word deletion tends to widen the context relevant to retrieving the deleted word, and in general increases the test's dependence on semantic constraints in the text (New York State, 1975, pp. 3-26-28).

In response to these factors, the cloze tests developed in 1975 at the New York State Education Department used a content word only deletion strategy. The intent was to make the test assess a reader's overall understanding of the literal content of the passage. These tests claim to provide access to a level of processing somewhere between the local syntactic processing tested by traditional cloze tests and the global reasoning abilities assessed by standardized reading comprehension tests (New York State, 1975, pp. 3-28-33). In constructing our revised version of the cloze test, we followed the New York State strategy of deleting only content words.[3]

1.1.5. A further revision: multiple choice cloze tests. Another revision in the cloze procedure made by the New York State group was to construct tests in a multiple choice format. Words were systematically deleted from a passage, and for each blank the reader was given a multiple choice list of five words from which to pick the word that was actually deleted. In our test construction, we also followed the New York State strategy in producing cloze tests in a multiple choice format. From our point of view, there are two good reasons to prefer the multiple choice version of the cloze test. One has to do with equitable strategies for scoring the cloze test; the relevant arguments are presented in the next chapter (see p. 37) and will not be repeated here. The other reason for using a multiple choice format is that it made possible the principal significant innovation in our version of cloze testing of reading comprehension--to tightly control the linguistic processing task required on each test item by carefully choosing the distractors, the wrong answers, from among which the correct word, the one actually deleted from the passage, must be chosen. The multiple choice cloze tests, as we constructed them, test the differential processing of semantic content as it is represented in various distinct types of syntactic and discourse structures. We will explain this at length in 1.3 below, but first we want to take time to discuss a general controversy about the nature of reading--a controversy that will have some effect on the significance of our test and the interpretation of its results.

1.2. TWO VIEWS ABOUT READING

1.2.1. A controversy. As indicated above, this chapter will discuss how the multiple choice cloze test we developed relates to theories about what reading involves and where reading problems come from. We constructed our test to provide information about certain kinds of problems a child might have when he reads. In so doing, we neglected certain other kinds of problems a child might have--the test provides no information about some kinds of problems that might appear in a child's reading. Now, there is controversy among reading researchers over the source of reading problems. Depending on one's position with respect to this controversy, the information emerging from our test will seem either more or less significant. Some researchers will find the sort of information we chose to focus on to be central to the understanding of a child's reading problems and crucial to their remediation. Others may believe that the problems assessed by our test are secondary consequences of other, more basic, reading problems, and that the test tells us little about the real source of reading difficulty.

The controversy we will be dealing with has to do with the nature of reading in its relation to speech and oral language processing and, concomitantly, the source or sources of reading problems. In our view, this is a major issue in reading theory and research, and has given rise to a debate which is by no means yet resolved. We

wish to discuss how our test and the information it provides about reading problems relate to views on both sides of the controversy.

On one side of the debate, researchers stress the primary importance of decoding in reading and decoding problems in reading and reading comprehension. On the other side are those who focus on reading skills involving the linguistic processing of structural and semantic units of text, and who believe that readers may have problems with such processing independent of any problems they may have with decoding. Following Weaver (to appear), we will refer to this as the "decoding versus organization" controversy.[4]

1.2.2. Reading problems as decoding problems. Everyone would probably agree that the reading process requires utilization of linguistic skills in syntactic and semantic processing of written text. One group of researchers stresses that these skills are the very ones used in processing spoken language. The only language skill unique to reading, they say, is that of decoding from print into some linguistic representation.[5] Once this decoding is accomplished, the reader's oral language competence is brought to bear on the resultant linguistic information. So any person's reading ability should be equivalent to his oral language processing ability, *if decoding is accomplished with sufficient facility* (see Shankweiler and Liberman, 1972). Under this view, there are only two possible sources for reading problems: (a) problems in oral language processing or (b) decoding problems. Decoding problems may be more subtle than the obvious inability to say words correctly given their written representation. A child has a decoding problem who must expend most or all of his attention, while reading, on the decoding task. Such a child may reproduce the words of the text fairly accurately, and yet have no attention left over to organize or comprehend what he has read. Thus, under this view, reading problems that apparently involve weaknesses in syntactic or semantic processing might actually stem from a lack of facility in decoding.[6]

1.2.3. Organizational problems independent of decoding problems. Another group of investigators stresses reading skills involving syntactic and semantic processing of written language, and the understanding and organization of units of text. No one would deny that understanding written language--like understanding oral language --requires such activities. The issue, as regards the reading process, is whether decoding is prior to, and necessary for, such linguistic processing. (For discussion, see Holmes, 1973.) And with regard to reading problems, the issue is this: can a child learning reading have difficulties with these processing and organizational skills in his reading, independent of any corresponding problem in his oral language processing and independent of his decoding abilities? A number of researchers claim that readers can have independent problems with such linguistic integration activities. A given reading passage might be within a child's oral language competence, and present few decoding problems for him, and yet give him problems in organizing and understanding the text and how it fits together.[7]

The controversy we have outlined concerns the relation between decoding and linguistic processing of written text--especially as these two factors contribute to reading problems. This debate cross-cuts the issue of what decoding itself is. Do we decode letter by letter, left to right through a text? Do we recognize some or all words as whole entities, some multi-word phrases as whole entities? We will not be dealing with these questions at all because, unlike the decoding versus organization controversy, they do not have any effect on how we regard the multiple choice cloze test.[8]

1.3. THE TEST

In this section we will discuss our construction of a revised multiple choice cloze test. We will describe some characteristics of the test and how it differs from earlier tests of the same general form. More important, we will try to explain the intent behind the changes we made--what we are trying to test and how we are trying to test it and what we hope the results reveal about an individual's reading. We will mention a few things the test does *not* test and say why we chose to ignore them in our test construction. Then in 1.4 we will return to the decoding versus organization controversy and discuss how the test construction fits in with various con-

flicting views about reading and the source of reading problems.

As we describe the characteristics of our multiple choice cloze test, and the kind of data it produces on the reading behavior of those who take it, it will become apparent that our test construction was informed by a "linguistic organization" view of reading problems, and probably fits more naturally with such a view. In 1.4 we will elaborate on this, and also discuss the consequences for our test, in case some version of a "decoding" view of reading problems turns out to be correct.

1.3.1. Controlling the task. The intent of any cloze test or multiple choice cloze test is to lead a child to use the context surrounding a blank, to retrieve the word that was deleted from the blank, and thus to demonstrate his comprehension of that surrounding context. The major innovation in our test construction was the following: for each blank in the test, we tried to control closely just *where*, in context, the child would have to look in order to find information to choose the deleted word from a multiple choice list of five words. For each blank, four of the five words are inappropriate with respect to some specified portion of linguistic context surrounding the blank. To illustrate this innovation, we will first give an example from an earlier multiple choice cloze test, and criticize it on the grounds that the task it presents to the child is not uniform in nature. Then we will give an example from our test, where the task required to get the item right is more closely controlled. We will argue that a child's performance on this latter type of task can tell us something very specific about the child's skills in processing written language.

1.3.1.1. A linguistic criticism of a cloze passage. The following passage appears as an example in New York State (1975), p. 4-24:

> Andy saw something at his bedroom __1__! He ran as fast as he could to __2__ Mother.
> "Listen, Mother!" said Andy.
> Mother said, "Please __3__, Andy. I have to get ready to __4__ to work now. Mrs. Coats is __5__ for me."

1a.	paper	2a.	wash	3a.	peep	4a.	think	5a.	finding
b.	window	b.	tell	b.	fly	b.	sing	b.	roping
c.	apple	c.	lay	c.	point	c.	tip	c.	waiting
d.	oven	d.	fix	d.	wait	d.	go	d.	racing

From a linguistic point of view, the distractor items on this passage bear several different relationships to the content of the passage and the structure of the clozed sentences. Some distractors violate a *subcategorization restriction*, some violate a *selectional restriction*, and some are *semantically or thematically implausible*.

Violation of a *subcategorization restriction* is a purely syntactic error: it leads to a sentence that is grammatically ill-formed. In the above passage there are four distractors that can be eliminated by virtue of a subcategorization violation:

4a. *I have to get ready to think to work now.
4c. *I have to get ready to tip to work now.

In both of these cases, *think/tip to NP (Noun Phrase) is syntactically ill-formed.

5a. *Mrs. Coats is finding for me.
5c. *Mrs. Coats is roping for me.

Both of these examples are ungrammatical due to the absence of an object for the verbs find and rope.

Some of the distractors in the passage violate *selectional restrictions*. These are semantic restrictions, often specified in the lexicon, or dictionary, which constrain what words a given word can go with. Violation of these restrictions leads

to sentences that are perfectly normal in structure, but are nonsensical.

2d. *He ran as fast as he could to fix Mother.

Here, the verb fix does not take animate object NPs.

4b. *I have to get ready to sing to work now.

4b differs from 4a and 4c in that sing to NP is perfectly good, for some choices of NP. But work is not a NP that will fit in this pattern: it is selectionally incompatible with sing.

Some other distractors can be eliminated on general grounds of semantic or thematic implausibility. Here we may distinguish between two cases: (a) some distractors can be eliminated on the basis of a specific piece of real world knowledge:

1c. Andy saw something at his bedroom apple!

A bedroom apple is not a common item in our culture.

2a. He ran as fast as he could to wash Mother.

Children do not usually wash their mothers. (b) Other distractors can be eliminated only if the subject has followed the content of the whole passage:

3a. Mother said, "Please peep, Andy..."
3c. Mother said, "Please point, Andy..."

In essence, our criticism of the test passage "What does Andy see" is this: the passage purports to require the use of context to discover the deleted words, and so to test the child's literal understanding of the passage. Indeed, it seems to us that it does do this. Furthermore, a child's performance on the passage depends on whether he is able to use several different kinds of linguistic processing skills in dealing with the text. But, for a number of the test items, it is hard to see clearly how the child's performance on those items relates to his utilization of any one particular skill. For example, what does it mean if a child misses item 2? That depends on just which wrong word he chose. If he chose fix, he has failed to notice a *selectional restriction* within the sentence. If he chose wash, he shows that he lacks a certain bit of real world knowledge--or at any rate has not applied that knowledge to the test-taking task. On item 4, if the child chooses think or tip, he has failed to notice a *syntactic restriction*, but if he chooses sing, he produces a *semantic* violation. In order to get any detailed information from this test passage on what processing skills a child uses successfully, we would have to perform a laborious linguistic item analysis on each test question for each child. This means that this test, with this uncontrolled choice of distractors, is not good for group testing or for testing that can fit into an instructional program. Also, it is not so clear that information about the use of *selectional* versus *subcategorization restrictions* versus *real world knowledge* is the sort of information that will give us the best insight into a child's strengths and weaknesses in reading. This is the sort of detailed information that happens to come out of this test passage as it was constructed. But perhaps if we applied some of the insights that linguistics provides about the English language, we could suggest some more interesting types of language processing skills, and construct a test that would more systematically and efficiently test those skills. That is exactly what we tried to do in constructing our revised multiple choice cloze test.

1.3.1.2. Constructing a cloze test on linguistic principles. In our test we constructed each item to provide information about a child's ability, in his reading, to deal with a specific portion of the context surrounding the blank. We will give an example of one test item from one of our test passages to illustrate how we went about this.

In this particular item, we were interested in gaining some information about the

child's processing of subordinate clauses--how well he integrates the content of a subordinate clause with the content of its matrix clause, in his reading. The sentence comes from a passage about Roman roads:

> Along the sides ran _____ so that the water could run off.
> *Word choices:* vehicles, pulleys, managers, ditches, chains

To control the task facing the child, we constructed this item with these conditions in mind: we wanted to lead the child to look at the subordinate clause ("so that the water could run off") to find information to help him choose the word deleted from the blank in the matrix clause. Accordingly, all five words in the multiple choice list fit perfectly well in the matrix clause alone ("Along the sides ran _____"). There is not enough information in this clause to choose the deleted word. But if the child also considers the subordinate clause, one word, ditches, emerges as the most plausible choice. We would argue that a child *must* process the subordinate clause, and its relation to the matrix clause, in order to get this item correct (barring lucky guesses, of course). In this way, we claim, the item tells us something about the child's ability to deal with a certain kind of syntactic structure in his reading.

The above item appears on a test passage rated at grade level four by the Dale-Chall (1948) Readability Formula, and tests the processing of a subordinate clause structure. On passage of grade levels three and above, we tested the processing of this and five other structural relationships in the text. So each test item falls into one of six "Structural Categories," and each item tests one particular kind of processing skill. The test results, reported in terms of these Structural Categories, should show the relative strengths and weaknesses of each child at each of these linguistic processing tasks. The Structural Categories are formulated in terms of the syntactic and discourse structure of the language of the text. In the next chapter we give examples of items from each of the Structural Categories used. The reader should return to that discussion (pp. 21-28) for a complete illustration of how we made each test item reflect a particular Structural Category.

For more elementary test passages [grade levels one and two on the Spache (1953) Readability Formula], we used different Structural Categories. In part this was an effort to reflect the different properties of the more elementary texts. For example, since subordination is not so frequent nor so important in these texts, we did not use "Subordinate Clause" as one of our Structural Categories. We noticed that one very common characteristic of texts drawn from elementary basal readers is frequent repetition of particular words. So we chose "More than Two Repetitions" as one of our Structural Categories. If a word is deleted that has already occurred several times in preceding text, it is placed in this category, no matter what sort of linguistic structure it occurs in. See the next chapter, pp. 23-24, for a discussion of the Structural Categories used in elementary texts.

1.3.2. The Structural Categories and what they tell us. Obviously, the particular Structural Categories we used in our test construction determine what information the test will provide about a child's linguistic processing in reading. We want to say something about why we used the particular categories we did and why we did not use other categories that we might have used.

The categories we used are rather conservative ones from a linguistic point of view. Of the six categories used on passages of third grade level and above, four are sentence-internal categories. Of these, one is defined on surface strings (the "Local" category, where clues about the deleted word come from within two words on either side of the blank). The other three are three major categories of traditional syntax: "Clause" (clues come from the same clause as the blank), "Conjoined Sentence" (clues come from a clause conjoined to the clause containing the blank), and "Subordinate Sentence" (illustrated above). In defining these syntactic categories, we tried to rely as much as possible on *surface* syntax in order to keep the test reasonably transparent to non-linguists, and to avoid some of the linguistic controversies about the underlying source of various surface structures. However, we did make a number of compromises in this strategy. Our most frequent compromise was to regard all infinitive complements as subordinate clauses (traditional school grammar regards

them as phrases contained in the same simple clause as the preceding finite verb). With regard to gerund complements, the compromise we made was much less systematic. The customary view in linguistics would be that all of the following sentences contain a subordinate clause:

John is looking forward to eating.
Max avoids speaking out.
Harry anticipates buying a shoe store.
Joe is afraid of going to the dentist.

In our test, we regarded gerund complements containing only a single verb or a verb plus particle as being in the same simple clause as the preceding finite verb, but gerund complements containing more material were regarded as complement clauses. So the first two sentences above are simple clauses, while the second two contain complement clauses. These clauses are underlined. The immediate reason for this move was that we anticipated difficulty in presenting eating and speaking out, in the above sentences, as clauses to non-linguists. We would have a much better justification for this compromise if the appropriate psycholinguistic research were to show that English speakers, in their oral language processing, treat the first two sentences as containing single clauses, and the second two as containing complements. This seems to be a conceivable result, and, more important, one that might be amenable to testing by psycholinguistic methods. We do not know of any evidence in either direction on this question.

We made the very same compromise in defining the "Conjoined Sentence" category. The question here is whether to regard conjunction reduced sentences as containing one clause or two. Once again, we depend on how much material appears on the conjoined VP (Verb Phrase). In the test, the first two sentences were regarded as single clauses, the second two as containing conjuncts:

John ate and drank.
Irv jumped up and ran out.
Max hired Bill and opened a restaurant.
Stu went to Akron and was appalled.

Right node raised sentences, like the one below, were regarded as conjoined, another possible departure from surface syntax:

Harry cooked, and John ate, the eggplant.

The two remaining categories of the six used on passages of third grade level and above are external to the sentence: "Same Paragraph" (clues about the identity of the deleted word lie outside the sentence containing the blank, but within the same paragraph), and "Separate Paragraph" (which should be self-explanatory). Considerable cleverness was often required to find four words that fit with all the information in the same paragraph containing the blank, but which were inappropriate to information in some other paragraph of the passage.

1.3.3. Some categories we did not use. These are the six rather traditional and straightforward categories we used on passages rated as third grade or above. We chose these as representing some important types of syntactic structure and text organization. We hypothesized that the categories might represent distinct linguistic processing tasks to a reader, and thus separate the testing population and provide some analytic instruction about each child's strengths and weaknesses in reading comprehension. We readily admit that other categories might also be interesting to test for what they could reveal about a child's reading. Some other interesting categories could easily be tested in the present test format, which provides a way to systematically test specific aspects of text comprehension. For example, very local phonological or morphological clues might provide us with valuable information about some children's reading, especially at very early stages of reading. Test items like the following could give us such information:

Sally _____ to play.
Word choices: like, liked, get, want

John had a _____.
Word choices: elephant, toy, umbrella, egg

The present test format would also serve to test a child's utilization of purely syntactic clues (*subcategorization restrictions)* in his reading; semantic *selectional restrictions* could also be tested. So, for example, the following item would test syntactic subcategorization:

We believe that John may _____.
Word choices: find, want, win, get

And this item would test *selectional restrictions:*

A box of hazel nuts _____ behind the stove.
Word choices: skated, milked, melted, dried

It might also be possible to adapt this test format to test certain semantic or pragmatic relationships in language, such as causation, necessary entailments of various sorts, or relevance relationships between sentences of a text. We chose not to try to test such things in our initial test construction for the following reasons. Given the state of linguistic research, we feel reasonably confident in picking out six or eight major structural categories of English and saying that, while some other categories may be just as important in the structure and organization of the language, no other categories are clearly more important than the ones we chose to use. In semantics, and certainly in pragmatics, we would not wish to make this claim. Currently, there are too many semantic and pragmatic classes, too poorly understood, for us to feel confident in picking out a small number of them as crucially important to language processing and reading comprehension. This point is worth illustrating at length, since there is currently a good deal of interest in trying to assess inferencing ability in reading. In the following section we will show why we chose *not* to try this in our test.

1.3.4. Assessing inferencing ability in reading.

1.3.4.1. Causation. *Causation* is one kind of inference that has attracted the attention of investigators studying the comprehension of written and spoken English. From certain texts, readers should be able to infer causation relations between sentences. For example, in the text,

John fell off the roof of the garage. He broke his arm.

a reader should be able to infer that the falling caused the broken arm. Other inferences are based on a notion of causation expressed in a single sentence. Readers should be able to infer the truth of certain things from texts containing causative sentences. From a text containing, "John forced Mary to stay home," we should be able to infer that Mary stayed home, even if the text never says explicitly, "Mary stayed home." There is a whole class of predicates that, like force, involve causation. Some others are cause, make, have, and persuade. If we want to know how well a reader handles inferences of causation in his reading comprehension, one thing we might do is test his understanding of linguistic structures containing these predicates. In particular, we would want to determine whether the reader draws the proper inferences from texts containing such structures.

These causative verbs are members of a class of predicates that require a certain type of inference. But among verbs which, like the causatives, precede a complement clause (or infinitive complement), there are at least six other classes of predicates that require a different pattern of inference from the causatives.[9] We will take the time to go over seven of these types of inferences, to illustrate the scope of the task involved in trying to assess inferencing ability. With regard to the construction of a reading comprehension test, the point we will be making is the following: in

order to construct a test that claims to assess a child's inferencing ability, we must have representative coverage of all these inference types. Each type would pose a different inference task to the reader or listener. So to include some types and omit others would be to bias the picture of inferencing ability that our test gives.

As complex as they are, the seven inference types to be described in the next section hardly exhaust the topic of inferencing in reading or listening comprehension. So, in fact, the problem of constructing a comprehension test to give a true picture of inferencing ability is far larger than what will be indicated here. The following section is simply intended to show what would be required to construct a test of the inferences associated with some verbs that take complement constructions.

1.3.4.2. Seven (or eight) predicate classes. The causative verbs we mentioned are included in a class that Karttunen (1970) calls "*if*-predicates." A partial list of these includes cause, make, have, force, persuade, and the non-causatives see, hear, and feel. Generally speaking, sentences with these predicates entail what follows the predicate.[10] For example, "John persuaded Frank to go fishing" entails that Frank went fishing. However, if the *if*-predicate is negated, then we can infer nothing at all from the resulting sentence: "John didn't persuade Frank to go fishing" does not entail that Frank did not go fishing--he might have gone, or he might not have.

In contrast, consider another class, "implicative predicates," including manage, bother, happen, and remember. As with *if*-predicates, sentences containing implicatives entail what follows the implicative. "Harvey managed to kiss Matilda" entails that Harvey kissed Matilda. But if the implicative predicate is negated, the resulting sentence entails the negation of what follows: "Harvey didn't manage to kiss Matilda" entails that Harvey did not kiss Matilda. Note that, in this way, implicative predicates require a different pattern of inference from *if*-predicates.

Sentences containing "negative implicative predicates," like fail and forget, entail the negation of what follows the predicate. "John failed to lock the door" entails that John did not lock the door. But if the predicate is negated, then the resulting sentence entails the positive of what follows the predicate: "John didn't fail to lock the door" entails that John locked the door.

"Factive predicates," which have been extensively studied by linguists, present yet another pattern of inference. (Some of the many factives are realize, regret, and be surprised.) Sentences containing factives entail the clause following the factive, and if the sentence is negated, it still entails that clause. The sentences "Harry realized that Jack wears a wig" and "Harry didn't realize that Jack wears a wig" both entail that Jack wears a wig.

"Counterfactive predicates," such as pretend, require just the opposite inferences from factives. A sentence containing a counterfactive, and the negation of that sentence, both entail the negation of the clause following the counterfactive. So both "John pretended that he was king" and "John didn't pretend that he was king" entail that John is not, in fact, king.

Alongside the class of *if*-predicates mentioned above, there is a class of "negative *if*-predicates," including prevent, dissuade, and stop. Sentences containing these entail the negation of what follows the predicate: "Fred prevented Hugh from leaving the house" entails that Hugh did not leave the house. However (as with *if*-predicates), if the sentence is negated, nothing at all is entailed: "Fred didn't prevent Hugh from leaving the house" is consistent both with Fred's staying in the house or leaving.

Finally, there are "*only-if*-predicates," such as try, be able, be in the position, have the time (opportunity, courage). Positive sentences containing these predicates entail nothing: "Max had the opportunity to kiss Marilyn" does not necessarily mean that he kissed her. However, if the sentence is negated, then the negation of the material following the predicate is entailed: "Max didn't have the opportunity to kiss Marilyn" does entail that Max did not kiss Marilyn.

These seven classes of predicates require a reader or listener to make various different types of inferences. In testing a child's ability to draw inferences from what he reads, we should also include items containing verb-and-complement constructions that do not require the child to draw particular inferences. There are plenty

of predicates in English that do not entail anything about the material in their complements. Some such predicates are want, expect, believe, ask, order, and advise. So, for example, "John asked Mary to marry him" does not entail either that Mary will or will not marry John, and likewise for "John didn't ask Mary to marry him."

1.3.4.3. Conclusions: testing inference in reading. We have covered a number of English verbs that occur with complement constructions, showing how these verbs fall into eight classes with respect to inferences they produce. We have gone into these linguistic facts in such detail in order to illustrate the complexity that would be involved in trying to assess a reader's inferencing abilities.

A particular child might handle some of the above inference types successfully, but fail to handle others. If only one or two types are represented in a reading comprehension test, then we cannot claim that test gives a true picture of a child's ability to draw inferences in his reading. A test that covers only one or two inference types tells us about a child's competence with those types; it tells us little about the child's inferencing abilities in general. This sort of limited information would also be of limited utility in providing instruction to meet the child's weaknesses in reading. To guide instruction, a test should provide some kind of analytic measure of skills and abilities--in this case, what kinds of inferences the child can make, and what kind he cannot (in his reading or in his oral language processing). Given this kind of information, instruction could be directed to specific problems a child might have in drawing certain kinds of inferences when confronted with certain kinds of structures in written or spoken language. But it seems silly to spend time teaching a child about inference with causative "*if*-predicates" and not even bother to find out whether he understands implicatives or factives--classes that are just as important to comprehension.

It is certainly possible to construct a test to assess a child's ability to draw the proper inferences when confronted with the eight types of predicates discussed above. But there are many other constructions in English that require inference, and some of them are much less understood than these verb classes. Many types of inference are not tied to particular lexical items such as the predicates discussed here, but might be invoked by various linguistic structures. (Consider, for instance, the causation relation which can be inferred to hold between the two sentences in the example at the beginning of section 1.3.4.1.). Understanding a text of English requires skill in handling many varied kinds of inference. We believe that no one--linguists, psychologists, or educators--can now pick out a few kinds of inference and declare that these are the important ones in English and the others secondary. So the problem arises: if we want to test inference, what do we include and what do we leave out?

Two considerations for those constructing comprehension tests are the following: (a) what language skills is it most useful to measure and (b) what kinds of language skills is it *possible* to measure, given the current state of knowledge about the English language? For the present, anyone who constructs a test of inferencing abilities will encounter problems with one or the other of these. If the test covers only a few kinds of inference, then the results do not give us a very complete or interesting picture of anyone's abilities--particularly since we cannot say with confidence which inferencing abilities are most important and which ones are less so. If the test tries to cover many types of inference, then it rapidly becomes unwieldy, and, what is worse, it may try to assess inferences that are poorly understood--cases where we would have trouble saying what answers are "right," and indicate correct inference, and what answers are "wrong."

In our present test construction, we have chosen to avoid these problems by making the test sensitive to *structural* aspects of English, rather than to particular inference tasks involved in reading comprehension. We feel that, for the present at least, this is the best way to construct a test that will be useful for large scale testing in a school environment and that will have useful instructional consequences.

1.3.5. Parts of speech. Besides the structural categories we have been discussing, we constructed the test to provide information about a child's processing of various parts of speech. Each deleted word is classed as one of eight parts of speech, and the test results provide information about the relative performance,

for each child, on these eight categories. (For a description of the "Parts of Speech Categories," see the next chapter, pp. 28-29.)

We do not really expect to see any child do systematically better on this test on deleted nouns than on deleted verbs, or vice versa. But some of the Parts of Speech Categories may reveal strengths and weaknesses in a child's reading. For example, a child may do better on simple nouns than on nouns that function as the heads of complex constructions in sentence structure. He may do better on simple verbs than on verbs that take complements, or he may show weakness in dealing with verbs in participle form. Any of these results, were they to appear, would tell us something about a child's language processing skills in his reading.

1.3.6. Conclusion: This completes our explanation of why we constructed the test as we did, of what we were trying to make the test reveal about a child's reading. From the above discussion, it should be fairly clear what kinds of skills and activities are required for the task of taking this test. But how do these skills relate to the natural activity of reading, and to the sorts of problems that children have with that activity? The answer to this question depends on just what is involved in the reading process, and on what possible sources there are for reading problems. We will now proceed to discuss how the test fits in with some views about the nature of the reading process and reading problems--in particular with the "decoding versus organization" controversy discussed in 1.2 above.

1.4. HOW DOES THE TEST TEST READING COMPREHENSION?

1.4.1. Reading as context-dependent prediction. It should be clear by now that our test, in providing analytic information about a child's processing of different syntactic and textual structures in his reading, is most closely allied to "organizational" views of the reading process (as described in 1.2.). One such view holds that proficient reading is a process of systematically predicting meaning in text, and then confirming or revising predictions. A prediction itself is based much more on the reader's syntactic and semantic processing of the written text, on his background knowledge of the world, and on certain basic inferencing strategies, than on his recognizing the printed marks on the paper. The verification process depends both on this linguistic processing and on decoding printed letters and words, but the decoding of text is usually incomplete--a sampling of the print to test the reader's predictions (see Goodman, 1973 and Smith, 1971). On this view of the reading process, the task involved in taking the multiple choice cloze test closely parallels the major task involved in proficient reading. The test-taking task requires the child to use the context to predict words in a text, and this is closely related to the activity of prediction required in proficient reading. The principal difference between the natural reading situation and the test-taking situation is that, on the test, the child must apply his prediction to the task of choosing the proper word from an explicitly given multiple choice list of five words. But the predominant task--making predictions based on the context--is the same in both cases. If reading is regarded primarily as a process of making predictions from context, then the task involved in taking the present test is very similar to the natural task of reading.

1.4.2. Reading problems as linguistic processing problems. As mentioned above, a number of studies claim to show that at least some reading comprehension problems are associated with difficulties in syntactic and semantic processing of written text. (See Weaver, to appear, for a review of this evidence.) If this view is correct, then our multiple choice cloze test gains importance as an instrument that can provide an analysis of such difficulties, and thus give us detailed information, for individual readers, about one class of reading problems.

We constructed the test to show a reader's relative strengths and weaknesses in dealing with certain categories of syntactic and discourse structure in written language. We picked categories that we felt, on linguistic grounds, to be important ones (see 1.3. above). Now, if the particular categories that we chose to test are important to linguistic processing in reading, then the pattern of individual strengths and weaknesses revealed by the test will tell us something important about an individual's reading skill. The test results should provide detailed

information about some reading problems that stem from difficulties in structural processing of text.

It might turn out that the test we have constructed does not adequately separate the testing population, and thus does not provide any interesting information about individual strengths and weaknesses in reading. One possible explanation for this could be the following: it might simply be that the syntactic and discourse categories that we chose to represent on our test are not the important ones in linguistic processing of written text. In that case, a version of the test could be constructed using the same format but sensitive to different categories in linguistic structure. In 1.3 above and in the next chapter, we suggest some other structural categories that might be relevant to linguistic processing in reading, and which it might be feasible to test, using the present test format.

Investigators who emphasize the importance of organizational and processing activities in reading may differ in their views of the role of decoding in the reading process. It is clear that decoding does play some role in that process and that the results of the multiple choice cloze test do not directly reflect that role. So the results of this particular test obviously do not tell the whole story about the skills involved in reading. But if, as many claim, the linguistic processing of written text is an important component of reading comprehension, then tests in the present format can provide some detailed information about that reading skill on an individual, reader to reader, basis.

1.4.3. Decoding as the source of reading problems.

1.4.3.1. Decoding problems and oral language problems. On the other side of the decoding versus organization controversy are those who claim that all problems that are specifically problems in reading derive from difficulties in decoding from print into some linguistic representation. This is not to say that children never show problems in processing the syntactic or semantic structure of text. The claim is rather that all such problems that are not also problems in a child's oral language processing come about as a result of interference from the decoding task. So, if we take the "decoding" view of reading problems, there are two possible sources for any difficulty a child might have in linguistic processing in his reading: (a) a child might have trouble dealing with certain linguistic structures in his oral language, and this would naturally extend to his reading as well,[11] and (b) a child might have trouble in his reading in dealing with certain linguistic structures that he handles adequately in his oral language, and this would be the result of interference from the decoding task.

If the "decoding" view of reading problems is correct, what are the consequences for the present test as a test of reading comprehension? That is, if reading difficulties stem from infacility in decoding, or from oral language processing problems, or from a combination of these two factors, just how are we to interpret the results of the test? Since the test was constructed to provide detailed information about a child's strengths and weaknesses in dealing with various syntactic and discourse structures, it is not so clear what the test results tell us about the child's reading skill. In the following, we will discuss how the test results fit in with such views about the source of reading problems.

1.4.3.2. Reading problems arising from oral language problems. If a child's reading problems arise from difficulties in his oral language processing, then either the oral difficulties will be the same as those noted in his reading, or else his oral problems will be exacerbated by his decoding problems and consequently will be worse when reading is involved. In either case, what the test results will reveal is a pattern of strengths and weaknesses in the child's *oral* language skills as they are manifested in his reading behavior. Now the question arises, is it useful to have such information about a child's oral language skills as they affect his reading ability? For example, if the oral language problems contributing to a child's reading difficulty simply reflect a stage in the child's linguistic development (see fn. 11), then we might expect those reading problems to solve themselves as his linguistic development progresses. There is, however, some research which indicates that exposing a child to complex linguistic constructions in written language can help in his language development (Chomsky, 1972). If this is correct, then there is clearly some utility in discovering a child's strengths and weaknesses

in processing various linguistic structures in his reading, and providing appropriate instruction. Even if the weakensses thus revealed are not essentially reading problems *per se*, this course of intervention should aid in the development of a child's reading through hastening the development of certain aspects of his oral language competence.

1.4.3.3. Reading problems arising from decoding interference. Some investigators believe that many reading problems, even problems a child might have with the integration and comprehension of syntactic and discourse structures, arise as the result of a lack of facility in the child's decoding skills. Children who are very poor decoders will fail to identify many words and so, *a fortiori*, be unable to integrate the words of text into meaningful complex structures. But a child might also appear to do fairly well in decoding a passage, and yet be expending so much attention on the decoding task that he is not able to apply the linguistic processing skills necessary for comprehending the passage--even though he would be able to comprehend the same passage presented orally. When the child's decoding becomes entirely automatic, so that it does not distract his attention, then comprehension of the text should follow naturally as the child applies his oral linguistic skills to the written language.

If it turns out that most linguistic processing problems in reading are the result of interference from non-automatic decoding, then such problems are pure artifacts of insufficient decoding skill. What then becomes of test results designed to show patterns in an individual child's skills at integrating and comprehending various different linguistic structures in his reading? Clearly, under this view of reading problems, such test results become considerably less interesting.[12] Automatic decoding would be the goal to strive for in reading instruction; skill at organization and comprehension should follow from attainment of that goal. It would be of doubtful utility to work specifically with a child on his weaknesses in structural processing and crganization of text. So, at least as far as instructional consequences are concerned, the value of test results that reveal such weaknesses would also be doubtful.

1.4.4. Performance on the test is a general measure of reading comprehension. No matter what view one takes about the nature of the reading process, whether one stresses decoding or linguistic organization, it can be argued that overall performance on the multiple choice cloze test provides evidence about a child's reading comprehension. As we argued in 1.1, if a child understands a given passage, then he should be able to use the information he has gained from that passage to retrieve deleted words, picking the proper word from a five word multiple choice list. This point is not at all affected by the controversy about how the reader goes about attaining an understanding of the passage. On the other hand, the controversy does affect our claims about the value of the particular kind of analysis of reading skills that emerges from the test results. In some views of reading, an individual's error pattern on this test will tell us something important about that individual's reading skills, and will provide important information about what kind of instruction will help improve his reading comprehension. In another view of reading, the test results show something about an individual's oral language skills, and point the way to instruction that may also aid in his reading comprehension. But in some views of reading, patterns of performance on this particular test do not get at the real problems in reading comprehension, and so do not tell us much about what kind of instruction should be given. But in any case, a child's overall performance on the test should give us an idea about whether he comprehends the test passages he has read.

In our discussion so far, we have periodically mentioned instructional consequences that might emerge from patterns of performance on this test.[13] In the next section, we will draw together and summarize this discussion of instructional consequences.

1.5. CAN THE TEST HELP US TO DEVELOP INDIVIDUAL READING INSTRUCTION?

1.5.1. Reading as decoding. We have already done a fairly complete job of discussing the test's instructional consequences in the case where decoding is the major impor-

tant activity in reading *per se*. In brief summary, it is probably fair to say the following: in the decoding view, the major problem (or at least the basic source of problems) in bad reading is bad decoding. Any weaknesses in syntactic and textual integration of written language are either *oral* language weaknesses or are artifacts of interference from the decoding task. Reading instruction should mainly be directed towards producing automatic decoding; any instruction having to do with structural organization ability should be thought of as an attempt to speed the development of a child's oral language processing skills, which may in turn have positive consequences for his reading.

1.5.2. Structural organization skills in reading. On the other hand, if syntactic and textual organization in reading is a skill independent of decoding skill, then the results of this test should be very useful in developing instruction to meet an individual's specific problems in reading comprehension. Suppose, as some have claimed, that an individual's reading comprehension ability correlates with his skill at integration and organization of structural units of written text. Suppose further that a child might have difficulty with such linguistic organization in his reading, independent of his skill at decoding. Now, the results of the present test are analytic of such integrative skills in reading; they will show a pattern of strengths and weaknesses in an individual's processing of various units of syntactic and textual structure. The test results will show us not only whether a child is good or poor overall at the organization of text, but will tell what kinds of units he is better or worse at handling in his reading. If we have picked linguistic categories that are important in the activities of syntactic and textual integration in natural reading, then the test results should separate the testing population, and so provide information about what organizational skills each individual child needs help with. This information should also help teachers to group children with similar problems for instructional purposes.

For all of this to have any significance for reading instruction, one more thing is required: It must be possible to teach children skills in structural processing in reading. That is, there must be instructional activities which have the result of improving a child's abilities at processing syntactic and textual units in written text. (See Weaver, to appear, for some experimental evidence on this.) If such instruction does have a positive effect, then the kind of skills analysis provided by the present test, and by variations of the present test in the same format, will be useful in helping to focus reading instruction on very specific problems in the structural organization of written text. In Chapter IV, we offer some suggestions for instructional activities related to the results of the multiple choice cloze test.

1.5.3. Grade level information versus reading skills information. Throughout this chapter, we have continually stressed the fact that our test provides analytic information about specific organizational skills in reading. In this respect, our test departs from one of the usual characteristics of reading tests: such tests are generally used to rate each child on two or three global categories of reading skill, such as "vocabulary" and "comprehension." This rating is calculated either with respect to a particular norm group or with respect to a particular expected level of performance; it tells us whether each child is performing at his expected grade level, and, if not, how many months or years behind (or ahead) he is.

In form, our present test is also arranged to provide information about reading comprehension level. Each child is given a test consisting of six passages (four for beginning readers). The passages are arranged in order of increasing difficulty, as measured by standard readability formulas. Given this arrangement, a child may show a stepwise decrease in his performance on the six passages, and there may be a clear break point in his performance, which will indicate his grade level of reading comprehension. (This aspect of the test construction is described in Chapters II and III.)

For several reasons, this clear stepwise descending performance may not appear for every child taking the test. The most interesting of these reasons has to do with some aspects of the test construction itself. We did not construct the individual test items to be more difficult on the harder passages. For one thing, we did not necessarily delete only difficult or uncommon words on difficult passages. In

fact, since even the most complex passages contain predominantly simple common words, most of the words we deleted are high on word frequency lists. Rarely did we delete a word above sixth grade level on our word list, even in passages of college level difficulty.[14] For another thing, the different Structural Categories are more or less evenly represented across passages of increasing difficulty. So, for example, suppose that a particular child, with his own particular strengths and weaknesses, finds it more difficult to deal with "Same Paragraph" and "Separate Paragraph" items than with "Clause" items.[15] On the six passage test that this child takes, he is likely to find as many "easy" clause items on the final difficult passages as on the initial simple ones, and as many "hard" paragraph items on the initial passages as on the final ones. Clearly, this sort of item arrangement will tend to lessen the chances that the child will display stepwise decreasing performance through the six passage test form.

Even if, in particular cases, the test does not reveal this sort of global information about a child's level of reading comprehension, it is constructed to provide useful information about his reading skill. In particular, it may give us a detailed analysis of the child's strengths and weaknesses in processing certain kinds of linguistic structures in his reading. This information is independent of any information the test might also provide about a child's global level of reading comprehension--how hard a passage he can understand, as measured by standard readability formulas. We feel that the analytic information about organizational skills will itself be very useful in helping us understand an individual child's reading problems, and in providing appropriate instruction.

FOOTNOTES

[1]A more detailed discussion of cloze testing of reading comprehension can be found in Chapters 2-4 of the paper "SPPED Cloze Exercises in a Multiple-Choice Format (1975)," prepared by the Staff of the Bureau of School and Cultural Research of the New York State Education Department. The modified cloze tests described in that report are direct ancestors of the present test. In our test construction we adopted much of the format of the New York State tests, but we made some significant changes as well.

[2]Our discussion of these advantages is taken from the New York State (1975) paper cited in fn. 1. See that paper for a more complete analysis.

[3]However, we did not regard all content words as candidates for deletion. Our rules for choosing deletable words from among the set of all content words are given in the next chapter, "Building a Group Test."

[4]In her paper, Weaver gives an informative discussion of this debate, and reviews some of the research literature providing support for both sides.

[5]For alphabetic writing systems, the linguistic level represented by the print might be phonetic, phonemic, morphophonemic, or some combination of these (see Klima, 1972).

[6]Mackworth (1977) reports some research that shows just how inexpert, laborious decoding activity might interfere with "higher level" linguistic processing, and thus constitute at least one source of organizational problems in reading.

[7]Goodman (1970) emphasizes a linguistic processing source for reading errors. Wiener and Cromer (1970) also speak of multiple sources for reading difficulties, and stress the independence of identification and comprehension activities in skilled reading. Goodman (1973) argues that the proficient reader processes written language without first translating it into its oral equivalent.

[8]Some of the controversy surrounding the process of decoding is raised in Gough (1972), Brewer (1972), and the general discussion following those papers (pp. 367-71). Further references are also cited in the papers themselves.

[9]These classes are described in Karttunen, 1970.

[10]To make this statement more precise, we would have to go into the "deep structure" of these sentences. Since our purpose is simply to illustrate types of inference, we will not bother to do this here.

[11]To hypothesize "problems" in a child's oral language competence is not necessarily to claim that he is mentally deficient or linguistically abnormal in any way.

There are a variety of reasons why a perfectly normal child might have linguistic problems with a given text, presented orally. For one thing, the language of the text might differ more or less from the language the child is accustomed to hearing. This extends all the way from gross language or dialect differences down to fairly subtle stylistic differences between "book language" and the language the child hears and uses every day. A less obvious source of "problems" in a child's oral language processing lies in the normal developmental sequence of his linguistic competence. Psycholinguistic research has shown that children of five to ten years old, children who are in school and learning to read, usually do not control all the subtleties of English syntax as spoken by adult native speakers (Chomsky, 1969). There is no guarantee that materials purporting to be written for children of a certain age will take this normal developmental sequence into account. The result might be a text containing language that would pose an oral processing problem even for a normal child in the age group for which the text is supposedly intended.

[12]In fact, if patterns of strength and weakness in structural processing do emerge from the test results, it will be a little hard to understand where they come from, under a view that traces all processing problems to decoding problems. We would have to hypothesize that, for some reason, non-automatic decoding affects the processing of some structures more than others. A more viable hypothesis would be to claim that the pattern in the test results traces back to strengths and weaknesses in the child's oral language skills.

[13]Chapters III and IV talk about various test result patterns, and make some recommendations for instructional strategies to deal with the weaknesses thus revealed.

[14]We matched the grade level of the words chosen as distractors with the grade level of the word that was actually deleted. We did this for two reasons: first, if the distractor words match the grade level of the passage and not of the deleted word (as is the case in some tests we have looked at), then the clever test-taker can very often choose the right answer without relying on comprehension because he can rely on the clue that most of the right answers will be easier words or more frequent words than the wrong answers. Secondly, if the grade level of the passage determines both which words to delete and which to choose as distractors, then the test at the higher grade levels becomes more a test of arcane vocabulary than a test of whole passage comprehension.

[15]See Chapter II, pp. 24-28, for a discussion of these categories.

Chapter II: Building a Group Test

2.0. INTRODUCTION

Our modified cloze tests differ in important ways from earlier cloze tests. (See 2.9 and Chapter I for information about other cloze tests.) This chapter describes how we went about constructing a set of cloze tests--from choosing passages out of readers, texts, and novels to combining passages into Test Forms of six passages given to each test-taker. The discussion will indicate the principles and procedures by which similar test materials can be constructed by others.

There were eight basic steps involved in making up this set of cloze tests.

- We selected a large number of passages from basal readers, novels, and textbooks in various content areas.
- We applied readability formulas to assign a Difficulty Level to each passage.
- We selected twenty-eight passages, one from each of the twenty-eight Difficulty Levels, to make into cloze tests. (These Difficulty Levels corresponded to grade levels one-fourteen.)

For each of those twenty-eight passages:

We underlined every word in the passage which, according to specified criteria, could be a candidate for deletion.

- For each underlined word, we pretended that word was deleted from the passage. Then, looking at the surrounding text, we tried to decide where information appeared that would give some clue about the identity of the "deleted" word.
- In each passage of Difficulty Levels 5-28, we picked fifteen words to actually delete. (For passages of Difficulty Levels 3 and 4, ten words were deleted per passage; at Difficulty Levels 1 and 2, seven words were deleted per passage.)
- For each deleted word, we picked four words from a word frequency list at the same grade level as the deleted word. These four words, together with the deleted word, serve as choices for filling in the deletion in the passage. The four words thus chosen are called "distractors" for the deleted word.

The result of the above steps is twenty-eight "clozed" passages, i.e. passages with words systematically deleted. We grouped these twenty-eight passages into Test Forms so that each test-taker, except for the beginners, would have six passages to read that were seen as progressively more difficult according to readability formulas. The beginners had only four passages on their Test Form. Thus, we had four Test Forms with six passages and one with four passages. (The five forms altogether cover roughly grade levels one-fourteen.)

The above eight steps reflect the order of tasks involved in constructing a modified cloze test. However, these steps are not independent of each other: decisions made at different points in the procedure affect each other. For example, the kind of words chosen as distractors for a deleted word (Step Seven) is determined by the judgment made in Step Five about where in the passage the reader can find a clue to what the deleted word might be. Conversely, in some cases the available distractor words may affect the judgment of where information appears that would best indicate the identity of the deleted word. This will be discussed further in connection with the choice of distractors below.

The procedures listed in the above steps will now be discussed in some detail, with accompanying examples drawn from the modified cloze tests that we constructed.

2.1. CHOOSING A PASSAGE

The procedures outlined here are designed for making a test for prose passages only. Each prose passage selected for use in the cloze test is at a specified

level of difficulty: it must be long enough to yield the required number of deletions, and it must constitute a meaningful, coherent chunk of discourse in itself. These requirements suggest three initial guidelines. First, the Difficulty Level of the passage should be determined. [The passages in the battery we built were assigned Difficulty Levels by the Spache (1953) and Dale-Chall (1948) Readability Formulas.] Second, the required length of the passage will fall between about 220 words at the higher levels, and 100 words at the lower level. Third, the passage should not depend on other parts of the story or essay to make sense, i.e. it should be possible to look at the passage alone and say what it is about.

Beyond these basic requirements, there are a few other considerations in passage selection. These are factors involved in the complexity and comprehensibility of text which are not captured by readability formulas because they are not easily quantified.[1]

Sometimes a passage may be assigned a relatively low level of difficulty but may actually be unsuitable at that level because of the abstractness or general sophistication of the topic or the use of metaphor. Metaphor in itself should not disqualify a passage, but it may affect the passage's suitability at a given Difficulty Level.

Although short sentences are generally taken to be characteristic of easier text, some prose consisting of short, simple sentences requires that a great deal of its meaning be inferred by the reader. The sentences are kept short because a lot of information is not explicitly encoded. This demand for inference will affect the suitability of a passage for a given level as well. Some reliance on the experience and common sense of the people building a test is necessary to augment the gross measures provided by readability formulas in order to choose suitable passages.

2.2. MARKING DELETABLE WORDS

Both teachers and linguists have traditionally distinguished between "content" words and "function" words. The major classes of content words are nouns, verbs, adjectives, and adverbs; these are words that can be said to *refer* to things, actions, properties, etc. Function words do not really refer in the sense that content words do--e.g. it would be difficult to say what words like the, every, between, and to refer to.

The purpose of the test is to assess reading comprehension by determining how well a reader can use clues from context to figure out words that have been deleted from a written text. In making a cloze test, it would be possible to delete either content words or function words or both. If we deleted function words, we would gain some information about the reader's understanding of the structure of the written text. (Such a test might be a good alternative to readability formulas for judging difficulty levels of texts.) In this test, however, we are particularly interested in comprehension of the content of written text. So we have chosen to delete only content, not function, words. In addition, not all content words are candidates for deletion. For example, some kinds of adjectives and adverbs will never be deleted, as indicated below.

After selecting a written passage of a particular Difficulty Level, the first step is to go through the passage and underline all those content words that are candidates for deletion. There will often be sixty or seventy such deletable words in a 200-word passage. We chose the fifteen words to be deleted from this set of sixty or seventy words.

Not all content words are to be considered candidates for deletion. There are two basic reasons for this. First, some content words are too hard to match with appropriate distractors at a later stage of test-construction. That is, if certain words were deleted, it would be difficult or impossible to find other words which could ever occur in their place, and which would thereby present a plausible choice for the test item. (Some such words are numbers; be, have, and do in verb strings; and words occurring in common cliches or idioms.) Second, some kinds of content words are typically highly independent of context. If such words were deleted from a passage, it is unlikely that the context would provide adequate clues

to their identity. (Proper names, and many pre-noun adjectives and sentence adverbs, are such words.) For a few kinds of words (nouns of duration, quantifiers, and modal verbs, for example), there would generally be no way to tell which member of a small, limited class of words has been deleted. The following list of Rules for Deletables specifies what words are considered to be candidates for deletion. We went through the written passage and underlined all such deletion candidates and then numbered each underlined word. In Appendix A, there is a sample passage that these procedures have been applied to.

2.3. RULES FOR DELETABLES

Underline the following words as candidates for deletion:

A. Nouns, except:
   a. Numbers (e.g. twelve, 12, twice, sixth)
   b. Proper nouns (e.g. Joe, China, Easter)
   c. Possessive nouns (e.g. the boy's father)[2]
   d. The first noun in a sequence of two nouns where the first noun modifies the second (e.g. steel helmet, dormitory room)
   e. Nouns of extent or duration (e.g. three hours long, 200 feet high, He stayed for two days, one day, one time, a little way, for a while)
   f. Quantified indefinites (e.g. someone, anybody, everything, nowhere, sometime)
   g. Quantifiers serving as nouns (e.g. Do you want more, I have several/enough, Each of the boys caught a fish, They all caught a fish)
   h. Semantically empty nouns (e.g. thing, stuff, matter, affair)
   i. Vocatives (e.g. Look here, turtle!)

B. Verbs, except:
   a. be, have, do, going to, used to
   b. come, go when they precede a bare verb stem or a gerund (e.g. Come stay at my house, I go fishing every Saturday)
   c. say, when associated with quotation marks
   d. Modals (e.g. can, should, might, must, may, will)

C. Adjectives, except:
   a. Pre-noun modifiers (e.g. fat man, two fish, several women, each day, running dog, even John, no bananas)
   b. Proper adjectives (e.g. American flag, French break, Arctic circle)

D. Adverbs, except:
   a. Any adverbs in passages at Difficulty Levels one through four
   b. Sentence adverbs (Test: See if the adverb can be taken out of the sentence (S) and put in the slot in "It is _____ the case that...(S)." For example, the sentence, "John is unfortunately sick" yields "It is unfortunately the case that John is sick." But the sentence, "John runs quickly" does *not* yield "It is quickly the case that John runs." Therefore, unfortunately is a sentence adverb, and quickly is not. So, unfortunately is not a candidate for deletion, but quickly is one)
   c. Adverbs modifying or intensifying adjectives or adverbials (e.g. very big, very quickly, quite old, extremely quiet, too tall, right in the middle)
   d. Verb-particles (words closely associated with a verb which indicate direction or location. These words usually also function as prepositions (e.g. go out, climb down, jump up, run away)
   e. Words indicating direction or location in space or time (e.g. north (of), east (of), nearby, outside, within, soon, later, here)
   f. more than, less than

In addition, do not delete the following:
   a. Articles (the, a, an)
   b. Prepositions (e.g. of, about, behind, above, through, in, to, with, by)
   c. Conjunctions, subordinating or coordinating (e.g. and, but, yet, although, as, like, if, then, because, however, while, when, than, whether, that)
   d. Interjections (e.g., yes, no, oh, hello, well)
   e. Contractions

f. Hyphenated words
g. not, too, else, such, so
h. just (e.g. I just don't understand)
i. Existential there (e.g. There is a cow in the parlor, There stood against the wall a large clock)
j. Words out of idioms (for which no plausible distractors can be found (e.g. more and more, for example, go so far as to say)
k. Pronouns (e.g. he, them, it, herself, what, who, how, why, this, those)
l. Foreign terms (e.g. percent)

We developed the above list of rules while making our cloze tests for twenty-eight passages. Therefore, the list should be fairly complete. But these rules may not handle every case: when building a similar test, you may find words that are not covered by these rules, or at least not obviously covered by them. In such cases, you will have to exercise your own judgment about whether such words should be considered candidates for deletion or not. A rule of thumb for making such judgments is this: can you think of some plausible distractors for the word in question, words that make sense when they are used to replace the word in question, but that are somehow inconsistent with the broader context of the passage? If it is hard to think of such plausible distractors, the word is not a deletion candidate and should not be underlined. It will not make a good test item for reading comprehension.

2.4. IDENTIFYING STRUCTURAL CATEGORIES AND PARTS OF SPEECH

This step and Step Seven (choosing distractors, see 2.0) are two major tasks in making a cloze test. In this step, we will do a little grammatical analysis of written English text. There are two sub-tasks here: (a) assigning to each underlined word a "Structural Category," and (b) determining the "Part of Speech" of each word underlined in the previous step.

2.4.1. Structural Categories. As we have said before, the cloze test is intended to test reading comprehension by determining how well the reader can use clues from context to figure out what words have been deleted. For any deleted word, a crucial clue about its identity might appear in various places in the context. It is our hypothesis that clues appearing in various locations with respect to the deleted word might present different degrees of difficulty to different readers. A given reader might be able to utilize clues that appear in certain locations, but not those in other locations, to help him identify the deleted word. The Structural Categories used on these cloze tests are intended to provide information about what kinds of clues any individual reader finds easy or difficult. In this way, the test should provide an analysis of some of the reading strengths and weaknesses of an individual reader.

The Structural Categories specify the relation between a deletable word and some important clue that could be used to make a guess about the identity of the word if it were actually deleted. For example, a deletion might appear in a relative (or adjective) clause, and an important clue to the deleted word might appear in the sentence containing that clause. Or a deletion might occur in some sentence, and an important clue might be in another sentence of the same paragraph.

The Structural Categories used in making these cloze tests are shown in Table 1:

Table 1

Difficulty Levels 1-4	*Difficulty Levels 5-28*
More than Two Repetitions	Local
Same Sentence	Clause
Adjacent Sentence	Conjoined Sentence
Same Paragraph	Subordinate Sentence
Separate Paragraph	Same Paragraph
	Separate Paragraph

Obviously these categories do not cover all imaginable relations between a deletable word and its context clue(s). But on linguistic grounds, these are important categories, and so they have been used in our test construction. We will explain these categories and give examples below.

In the previous step, each deletable word was underlined and numbered. Now for each numbered word, the task is to suppose that it has been deleted. Look at the remaining text and try to find a clear clue that suggests the identity of the "deleted" word. There are various ways in which the language of the passage might offer a clue. For example, the use of particular words, or the information contained in a clause or separate sentence, might lead you to have an idea about what the underlined word, if it were deleted, might be. If you can find such a clue, decide where it is located (in relation to the "deleted" word) in terms of the Structural Categories given in Table 1. Here is an example where the "deletion" is in a sentence which has a subordinate clause containing a specific clue about the identity of the "deleted" (underlined) word:

> Though mammoths had been found before, this was a most unusual discovery.

Suppose the word discovery were deleted from the main clause "this was a most unusual discovery." This sentence has a subordinate clause which mentions the finding of mammoths. This subordinate clause gives us a clue about the "deleted" word. Given an appropriate set of distractor words, the information in the subordinate clause would allow us to pick out discovery as the proper word from a list of choices. For example, suppose we had to choose among sleeve, chain, discovery, weekend, and bid. Each of these words would be suitable to fill the blank in the simple sentence, "This is a most unusual _____." That is, the simple sentence alone would make sense with any of the distractor words filling in the blank. But if we have read and understood the subordinate clause, then we will be led to choose discovery as the correct word to fill the blank from among these five. (In this way, this item tests the reader's ability to understand the subordinate clause itself, and to understand how that clause relates to the main clause.) Since the clue occurs in a clause subordinate to the clause containing the deletable word, the Structural Category assigned to discovery is "Subordinate Sentence." This same category is to be assigned when the clue occurs in the main clause and the deletable word is in the subordinate clause. So the same category would apply in the above example if the deletable word in question were found (in the subordinate clause), in which case the clue would be located in the main clause.

Note that the Structural Category assigned at this stage will directly affect what distractor words are chosen later on (in Step Seven). In the above example, we would not choose find as a distractor, because nothing in the subordinate clause would help a reader choose between find and discovery as the deleted word in the main sentence. We will have more to say later on about the important task of choosing distractors.

It may sometimes be the case that the context provides information about the deletable word in more than one place. In these cases, (a) if *either* of the clues seems sufficient to indicate what the word, if deleted, would be, assign the Structural Category of the clue that is closest to the deletable word. So, for example, if there seem to be equally clear clues to a deletable word in a separate paragraph and in the same paragraph as the word, that word should be assigned the Structural Category "Same Paragraph." (b) If *both* of the clues appear to be necessary to indicate the identity of the deletable word, assign the Structural Category of the clue that is farthest away from the deletable word. So, in the case where information about a deletable word occurs in both the same and in a separate paragraph, but neither clue alone seems sufficient to indicate what the word might be, assign the category "Separate Paragraph" to the word.

It may not be possible, in some cases, to find any specific clue about the identity of the deletable word. In such cases, the word is not assigned any Structural Category. It is labelled "No Cue," and is no longer a candidate for deletion. (See 2.10.2 below for further discussion of this problem.)

In summary, there are two tasks involved in assigning a Structural Category to a deletable word: first, decide whether there is a specific clue about the identity of the deletable word, and second, decide where that clue is located in terms of the various Structural Categories listed in Table 1. We will now define and discuss the various Structural Categories, giving examples of each category.

2.4.1.1. Rules for classifying deletions as to structural category at difficulty levels 1-4.

2.4.1.1.1. More than two repetitions. This category is used when the deleted word has already occurred twice in the *preceding* text, and the last previous occurrence is within five lines of the deleted word. The two previous occurrences must be exactly identical to the deleted word. So, for us, boat and boats, walk and walked, rabbit and Rabbit (as a proper name), do not count as identical. Any time this category applies to a deleted word, it should be assigned to that word, regardless of any other structural relation that obtains between a clue and the deleted word. Example:[3]

Duck said, "Look at me!
Look at me, Rabbit.
I CAN SWIM.
What can you do?
Can you swim, Rabbit?"
Rabbit said, "Look at me!
Look at me, Duck."

The underlined word look is assigned the Structural Category "More than Two Repetitions" because look has already occurred twice in the preceding text.

2.4.1.1.2. Adjacent sentence. When the clue occurs in the sentence directly preceding or following the sentence containing the deleted word. This category is only used when the deletion and the clue occur in the same paragraph. Example:

"What are we going to do?" says Adam.
"Look at ships," says David, "I like to see ships come and go.
You will too!"

The underlined word ships is assigned the Structural Category "Adjacent Sentence" because information in the immediately preceding sentence provides a clue to tell the reader what that word would be if it were deleted.

2.4.1.1.3. Same sentence. This category is used, in passages at Difficulty Levels 1-4, whenever the clue occurs in the same sentence as the deleted word. A "sentence" is considered to be what intervenes between a capital letter and a period. [At Difficulty Levels 1-4, this category is assigned even if the clue(s) occur in clauses subordinate or conjoined to the clause containing the blank.] Example:

The sun goes down and night will come soon.

The underlined word sun is assigned the Structural Category "Same Sentence" because clues about the identity of that word appear in the same sentence.

2.4.1.1.4. Same paragraph. When the clue occurs in the same paragraph as the deleted word, but not in an adjacent sentence. (Examples of the same and separate paragraph categories will be given below, when we discuss the Structural Categories used on passages at Difficulty Levels 5-28.)

2.4.1.1.5. Separate paragraph. When the clue occurs in a separate paragraph from the deleted word. In texts at the early levels, especially those containing a lot of dialogue and not much narrative, paragraph divisions (as a printing convention) are used differently from how they are used in texts at higher levels. In fact, it is sometimes hard to say where paragraph divisions, corresponding to a change of topic, occur in these elementary texts. In such cases it might make sense, and should be considered an option, to eliminate "Separate Paragraph" as a distinct Structural Category and to use a single category (at Levels 1-4) to include

all cases where the clue occurs in a non-adjacent, separate sentence from the deleted word.

2.4.1.2. Rules for classifying deletions as to structural category at difficulty levels 5-28.

2.4.1.2.1. Local. When the clue is provided by the immediate context of the deleted word (within the same clause and no more than two words on either side of the deletion). Example:

...so that the present water can be used _____ and over.

Given an appropriate choice of distractors, the immediate context of the deletion ("be used _____ and over") will provide a sufficient clue to identify the deleted word, over.

2.4.1.2.2. Clause. When the clue is in the same simple clause as the deletion, but farther away than two words. Use this category whenever *any part* of the clue to filling in the blank is farther than two words from the blank. Example:

A box of hazel nuts _____ behind the stove.
Distractors: milked, yelled, skated, dried, melted

A "box of hazel nuts" would dry, not milk, yell, etc. The clue is in the same clause but extends farther than two words from the blank. Generally speaking, the traditional notion of "clause" will be used here, but we will have more to say about identifying compound and complex sentences.

2.4.1.2.3. Conjoined sentence. When the clue is in a sentence (main or subordinate clause) conjoined to the sentence (main or subordinate clause) containing the deletion. Example:

The U.S. faces this problem right now, and it is even more serious in densely populated _____.
Distractors: rivers, worlds, fields, cities, countries

Mention of the "U.S." in the first clause suggests countries for the blank in the second, conjoined clause.

2.4.1.2.3.1. Some rules defining conjoined clauses. As in the above example, two full clauses may be conjoined. We also regard two predicates with the same subject as conjoined clauses. Example:

[It was conspicuous far to sea], and [might have been entered as a sailing mark upon the chart].

Material inside the first pair of brackets is conjoined to material inside the second. Example:

[John walked into the room] and [punched Harry].

Conjoined clauses are marked as before.

Exception: If the two predicates consist only of single verbs, or of verbs with particles, we do not consider it conjoining. For our test purposes, the following examples contain only a single clause each:

John ate and drank.
John turned around and cried out.

However, a sentence having two subjects and two verbs with a common object is regarded as conjoined. Example:

[Harry cooked], and [John ate, the eggplant].

Conjoined clauses are marked as before.

2.4.1.2.4. Subordinate sentence. When the deletion is in a subordinate clause and the clue is in the sentence containing that clause; when the deletion is in the main clause and the clue is in a subordinate clause; when the deleted word and the clue occur in two different subordinate clauses, of any type, connected to the same main clause. Example:

I watched tensely for that breaking away of the timber
which _____ an approach to the sea.
Distractors: supervises, foretells, distracts, penalizes, renounces

The deletion is in a relative clause, "which _____ an approach to the sea." The sentence containing this relative clause, "I watched tensely for that breaking away of the timber," suggests foretells to fill the blank.

2.4.1.2.4.1. Some rules defining subordinate clauses. We will regard as subordinate clauses all constructions beginning with subordinating words like as, though, because, if, while, after, etc. Examples (with the subordinate clauses in brackets):

[Although the usefulness of these tests has been questioned],
they are apparently here to stay.
I came [because you called me].

Even if such a clause has no subject, and a participial verb, it is still a subordinate clause. For example:

[While walking in the woods], John discovered an old cabin.
[Though injured], John got through the enemy lines.

Relative clauses are subordinate. For example:

This is the chair [which I bought] (or) [that I bought] (or) [I bought].
That chair, [which I bought this morning], is comfortable.

Relative clauses may be "reduced," lacking a that or a which or a who, and lacking an auxiliary verb. For example:

They were two small boys [looking for adventure].
Salt is not the only substance [dissolved in the ocean].

A relative clause might not be adjacent to the noun it modifies. For example:

A pan of cornmeal sat on the sink [left over from breakfast].

In general, if you can insert "which is," "who were," etc. before a construction, it is a reduced relative clause. So, "in the ocean" is a relative clause in, "salt is one substance in the ocean." But there is only one clause in, "The skin of a lion hung on the wall" ("of a lion" is not regarded as a relative clause). A relative clause sometimes occurs even when there is no noun for it to modify. Examples:

[What John saw in the garden] would give you the creeps.
[What we want] is Watney's.
[No matter where they looked], they couldn't find it.

Complement clauses of nouns are subordinate clauses. For example:

I'll tell you the reason [that I like you] (or) [I like you] (or) [why I like you].
The knowledge [that he was ill] disturbed John.

Such subordinate clauses may contain infinitives or present participles. For

example:

There will not be enough water [to drink].
A way may be found [to desalt seawater] (or) [of desalting seawater].

A clause beginning with that and complementing a verb is a subordinate clause. For example:

John said [that it's going to rain].
It seems [that Harry will come to the party].
[That John will be late] appears certain.

Sometimes like replaces that. For example:

It looks [like the Yankees will win].

Sometimes that does not appear. For example:

Mary thinks [she's beautiful].

A clause beginning with that and complementing an adjective is a subordinate clause. For example:

[That Max is sick] is unfortunate.
It's unfortunate [that Max is sick].
He's so strong [that he can bend iron bars].
(In the latter two examples, that may be omitted.)

In sentences containing the constructions "more adjective than" and "as adjective as," regard what follows these phrases as a subordinate clause only when it is a sentence containing a subject and a verb (usually a form of be). These examples contain subordinate clauses,

I'm taller [than Max is].
This is more difficult [than I expected].
Bill is as strong [as Jack and Phil were].

but these examples do not:

Sue is as intelligent as Harry.
Paul is stronger than the thirty-four purple unicorns in the garden,

Regard direct quote constructions as subordinate. For example:

["Play ball!"] the umpire cried.

Infinitive constructions should always be regarded as subordinate clauses. For example:

I want [to eat].
[To say that you never make mistakes] is foolish.
All my strength seemed [to ooze out of me].
I jerked my head around [to look].

Participial constructions complementing verbs will usually be regarded as subordinate clauses. For example:

John enjoys [kissing girls].
I found myself [slipping into bad habits].
I approve of [John's playing the flute].

However, when the participial construction consists only of a participle, a participle plus particle, or a series of several participles, we consider for our test purposes that no subordinate clause is present. For example:

John enjoys swimming.
I found myself falling down.
I found myself slipping, sliding, and falling.

Verbal nouns (gerunds) are to be treated in the same manner as participles. If a verbal noun has one or more phrases modifying it, then a subordinate clause is present. For example:

[Sleeping late in the morning] is my favorite activity.
We talked about [buying a car].

But, if only the verbal noun, verbal noun plus particle, or a series of verbal nouns is present, then, for our test purposes, there is no subordinate clause. For example:

Sleeping is my favorite pastime.
Eating out is often fun.
Running and bicycling are good for you.

Adjectival participial constructions are also treated in the same way. So there are subordinate clauses in these examples,

[Running through the woods], John tripped and fell.
[Interrupted by Harry for the fourth time], John began to get mad.

but not in these examples:

Running, John was soon out of breath.
Climbing up, John got a better view.
Worried, Harry called the police.

Thus ends the discussion, somewhat extensive, of the Structural Category for subordinate sentences.

2.4.1.2.5. Same paragraph. When the clue occurs in the same paragraph as the deleted word, but not in the same simple, conjoined, or complex sentence. Example:

> It was like the many pictures I had seen, and at the same time utterly unlike them. The shape was there, and the familiar distinguishing features, the sweeping skirt of glaciers, the monstrous vertical precipices of the face and the jagged ice line of the east ridge, finally the symmetrical summit pyramid that transfixed the sky. But whereas in the pictures the mountain had always seemed unreal--a dream-image of cloud, snow and crystal--it was now no longer an image at all.[4]

The underlined word pictures is assigned the Structural Category "Same Paragraph," because information as to the identity of that word can be found occurring in the same paragraph with that word.

2.4.1.2.6. Separate paragraph. When the clue occurs in a separate paragraph from the deleted word. Example:

> I turned my eyes from the dazzling glare and looked at my companions. Osborn still stood

a little in front of the others. He was absolutely motionless, his young face tense and shining, his eyes devouring the _____.[5]

The passage containing this paragraph is a description of the author's first view of Mt. Everest. The content of the preceding paragraphs in the passage will give the reader sufficient information to choose the deleted word, mountain, from an appropriate set of distractor words.

2.4.1.2.7. "No Cue." Sometimes a passage will contain no specific clue about the identity of the deleted word. Use the "No Cue" category when there is no specific information in the text which gives you a correct, or nearly correct, idea about the deleted word. Do *not* use this category if there is some specific information in the passage that permits you to guess (a) the deleted word, (b) a synonym of that word, or (c) some word that--though not synonymous--falls in the same semantic class as the deleted word. An example of this third case is the following:

Two trees grew on the hill. One was an _____ and one was a _____.

Clearly, tree-names are needed to fill the blanks. We can tell this from the phrase "two trees" in the first sentence. It is very unlikely that we could guess the proper names (oak and linden, in this case). Furthermore, if we guessed elm for the first blank, we would not have guessed a synonym for oak. But we would have guessed the proper kind of thing, and so there is some specific clue. We would *not* use the "No Cue" category in this example.

2.4.2. Parts of Speech. Each deletable word in a passage must be assigned to a Structural Category according to the rules just given. It must also be assigned to a Part of Speech Category. The Parts of Speech Categories are given in Table 2. They are drawn both from linguistics and from traditional English grammar.

Table 2

Parts of Speech	
N	(Noun)
Nhd	(Head noun of a construction)
Vbl N	(Verbal Noun)
V	(Verb)
V Ppl	(Participial Verb)
V Compl	(Complement-taking Verb)
Adj.	(Adjective)
Adv.	(Adverb)

These Parts of Speech Categories tell us something about how the deletable word functions grammatically. For example, it is obvious that nouns and verbs play different roles in the grammar of a sentence. In the same way, a simple noun and a head noun of a construction have different roles, as do a simple verb and a complement-taking verb. We will now describe and give examples of the Parts of Speech Categories listed in Table 2.

"Noun," "Verb," "Adjective," and "Adverb" are traditional grammatical categories, and identifying them should cause no problem. "Verbal Noun," too, should cause no problem; we use this to refer to gerunds--ing verbs used as nouns. "Participial Verbs" are also just the traditional past and present participles. The remaining two categories are "Noun Heads" and "Complement-taking Verbs." We will provide examples and discussion of these, to help in their identification.

2.4.2.1. Noun heads. A noun may either be simple, as in,

The boat is sinking.

or it may serve as the "head" of a more complex construction. The most familiar example of a noun heading a construction is a relative clause:

The man who they caught is a spy.
The boat that hit the rock sank.
John, whom you met, is coming tonight.

Man, boat, and John are noun heads in these examples. Reduced relative clauses, as discussed previously (2.4.1.2.4.1), signal the presence of noun heads. However, when modifiers precede a noun, we do not use the "Noun Head" category. So, for example, the nouns in the first two sentences below (cost and water) are counted to be noun heads, but the nouns tablecloth and men in the last two sentences are not counted as noun heads.

The cost of beef is exhorbitant.
The water in the pits was salty.
A blue tablecloth was on the table.
Three mighty men appeared.

Men and tablecloth are simple nouns in these sentences.

Nouns can also take complements that are quite different types of clauses. In some cases, the clause that is subordinate to the noun head does not act like an adjective. For example:

The report that Harriet is running for President has been well received by everyone in the Party hierarchy.
The report that Harriet heard was extremely upsetting to her.

Report functions as a noun head in both sentences, although only in the second sentence does the clause starting with that act as an adjective clause.

2.4.2.2. Complement-taking verbs. These are verbs that are associated with subordinate clauses. For example:

2.4.2.2.1. Verbs taking that complements (sometimes the that can be omitted).

John said that it's going to rain.
It seems that Harry will be here.
That Max will be late appears certain.
Mary thinks that she's beautiful (or) Mary thinks she's beautiful.

2.4.2.2.2. Verbs taking direct quotes. For example:

"Play ball!" the umpire cried.

2.4.2.2.3. Verbs taking infinitive complements. Examples:

I want to eat.
All my strength seemed to ooze out of me.
I jerked my head around to look.

2.4.2.2.4. Verbs taking participial constructions. Examples:

John enjoys kissing girls.
I found myself slipping into bad habits.
I approve of John's playing the flute.

However, when a verb takes a participial construction that is not considered a subordinate clause, it should be regarded as a simple verb, *not* a complement-taking verb. (See the above discussion concerning this construction.) For example, enjoys and found in the following sentences are simple verbs, *not* complement-taking verbs:

John enjoys swimming.
I found myself falling down.
I found myself slipping, sliding, and falling.

2.5. DELETING WORDS

In the previous step, we assigned each deletable word to a Structural Category and a Part of Speech Category. In this step, we choose fifteen words to actually delete from the passage (seven words are deleted at Difficulty Levels 1 and 2, and ten words at Levels 3 and 4). The words that are actually deleted are chosen from among the deletion candidate words we have been working with in previous steps.

In picking words to delete, the general goal to keep in mind is *equal representation*. Insofar as possible, in each passage we wish to delete approximately the same number of words for each Structural Category and the same number of each Part of Speech. In practice this is usually not possible. Some of the categories are almost always under-represented in written text (e.g. the Strucutral Category "Conjoined Sentence"). Also, variations in writing style cause passages to differ widely in what categories are present (e.g. some passages contain many adverbs while some contain almost none). Given these difficulties in obtaining equal representation of categories, we simply do the best we can, being sure to try to get *some* representation of each Structural Category and Part of Speech. For example, if a passage contains only one deletable word of the Structural Category "Conjoined Sentence," be sure to delete that word. It is more important to get equal or approximately equal representation of the Structural Categories than of the Parts of Speech Categories. This is so because more of the Structural Categories are more relevant to instruction (see Chapters III and IV). When you have to choose between deleting one word or another in the same Structural Category, choose to delete the word that will help equalize Parts of Speech distribution among the fifteen deleted words. But always let your first consideration be the equal representation of Structural Categories among the fifteen deleted words.

There are three more things to take into account in choosing what words to delete. Take care not to delete a word which acts as part of a clue to another deleted word. If possible, keep the deletions five or more words apart in the passage. And try not to delete any particular word more than once in any given passage.

In summary, observe these rules in choosing words to delete:

- Insofar as the passage allows, try to equalize the Structural Categories among the fifteen deleted words; try for at least *some* representation of each Structural Category.
- Insofar as the passage, and the equalization of Structural Categories, allow, try to equalize Parts of Speech among the fifteen deleted words.
- Make sure not to delete any words which are clues to other deletions.
- If possible, keep deletions five or more words apart in the passage.
- Try not to delete any particular word more than once in the same passage.

2.6. CHOOSING DISTRACTORS

"Distractors" are the words which make up a list of choices, along with the deleted word, for each multiple choice test item. After identifying categories [Step Five (see 2.0)], choosing distractors is the next major task in constructing the cloze test. The two steps are closely related: the Structural Category assigned in Step Five will be a major consideration in what distractors are chosen.

For each word deleted in the preceding step, we must now choose four distractors. The distractors chosen for each deleted word must match that word in part of speech and grade level. (The grade level of the deleted word, and consequently that of the distractors, will frequently differ from the grade level of the whole passage.) The distractors can be chosen from any good word list of English words. The words on the list should be grouped together in categories of nouns, verbs, adjectives, and adverbs, and should also be arranged by grade level. Each deleted word should first be located on this list. Then, for a deleted noun, appropriate distractors should be chosen from among nouns of the same grade level. Similarly, the procedure should be followed for verbs, adjectives, and adverbs. (What constitutes "appropriate" distractors will be discussed below.) If you cannot find enough appropriate distractors at the same grade level, look for distractors at one grade

level *lower* than the deleted word. If enough distractors still cannot be found, look at one grade level *higher* than the deleted word; then two grade levels lower, then two levels higher, etc. The important thing to remember is that the list of choices for each answer should not vary in ways that will make it obvious what the answer is, just from the variation in the list itself. For example, if all the wrong answers are words that are quite a bit easier than the right answer, then a test-taker could choose the right answer without really being able to comprehend the passage.

Locating the distractors on a word list, then, is fairly straightforward. However, if the deleted word is an agentive noun (e.g. runner, builder), select distractors from the *verb* list at the grade level of the corresponding verb (run, build). The distractors used will be agentive nouns derived from the verbs selected from this verb list (e.g. if drive is selected from the verb list, the distractor used will be driver). Distractors for verbal nouns (gerunds) like eating or walking may have to be derived from verbs by a similar procedure.

As a general rule, try to keep the deleted word--the correct answer--from standing out among the list of distractors. There are a number of considerations involved in achieving this goal. The list of things to consider here will not be exhaustive, but should serve to demonstrate the principle involved, which is that the deleted word and its distractors should have a lot of characteristics in common so that, as far as possible, the choice among them will not be governed by peculiarities of any member(s) of the list.

- The deleted word and its distractors should fall in the same grammatical subcategory within the major part of speech. So, for example, if a deleted verb has a complement, it should be matched with complement-taking verbs.
- If the deleted word has an inflectional ending, the distractors should generally have the same kind of suffix, i.e. if a plural noun is deleted, match it with plural nouns, match past tense verbs with other verbs in the same form, and so on. When the deleted word has an irregular plural or past tense (etc.) suffix, choose at least one distractor word with an irregular suffix. This same principle will apply in the case of certain prefixes like de-, re-, etc.
- If the deleted word begins with a consonant, choose distractors which begin with consonants, varying the initial consonants.
- If the deleted word begins with a vowel and is preceded in the text by an, choose distractors which also begin with vowels.
- If the deleted word is a countable noun and is preceded in the text by the, choose count nouns for distractors. Similarly, match a non-countable noun with other nouns which do not require an article to precede them.
- Avoid choosing distractors which are semantically related either to the deleted word or to each other. (For example, hammered and nailed should not appear in the same distractor list.)
- Avoid any marked semantic difference (e.g. abstract/concrete, animate/inanimate, etc.) between the deleted word and the list of distractors. For example, an abstract noun such as duty should not be matched with four concrete nouns such as kitchen, peanut, turtle, and handkerchief.
- This principle of matching the distractors to the deleted word is what leads us to choose distractors from the same grade level as the *deleted word*. In some tests, distractors are chosen from the same grade level as the *passage*. But obviously, many very elementary words occur in very difficult passages. If a second grade noun like chair is deleted from a twelfth grade passage, and twelfth grade nouns are chosen as distractors, then the list of choices for this item might be something like the following:

xenophobia
encomium
nescience
chair
protagonist

The correct answer, chair, stands out terribly in this list. A child who has no understanding at all of the passage is likely to pick the correct answer simply because it is the only word familiar to him.

● In general, avoid using the same distractor twice on the same passage. So, for example, if you have already used the word follow as a distractor, do not pick follow as a distractor for another deleted word on the same passage. Also, avoid using similar forms as distractors, such as following, followed, follows, etc. One exception to this rule will be discussed when we talk about making up Test Forms (Step Eight).

2.6.1. Distractors relating to structural categories. The major constraint on the choice of distractors is related to the Structural Category associated with the deleted word. The idea behind the choice of distractors is this: distractors should be *in*appropriate to the context at the level of the Structural Category associated with the deleted word, but they should be appropriate with respect to certain other Structural Categories. The Structural Categories used in our tests can be seen as a hierarchy in terms of the relative "distance" between the deleted word and the information which acts as a clue to the identity of the deleted word. For each deleted word, a clue is located at a particular level in this hierarchy (as represented by the Structural Category assigned to the deleted word). The distractors chosen for the deleted word should *not* make good sense if you look at as much of the context as is represented by the Structural Category assigned. They should, however, make good sense at the next *lower* level in the hierarchy. Suppose, for example, that the clue for a deleted word is in the same paragraph as the deleted word, but outside the immediate sentence containing the deleted word. The Structural Category assigned will be "Same Paragraph." Each of the distractor words, if inserted in the blank, should yield a sensible and grammatical English sentence--looking at the sentence alone. But in the context of the paragraph as a whole, each of the distractors should be inappropriate. The following detailed examples will illustrate this, for each of the Structural Categories which appear on the cloze tests.

2.6.1.1. Clause structural category distractors. Suppose that the deletion in the following sentence was given the Structural Category "Clause."

> Since the _____ in the pits was salty, the diggers knew they must be connected with the ocean.

In the cloze test containing this sentence, we want to lead the reader to look at the entire clause containing the deletion, in order to correctly fill in the blank. We do not want to allow the reader to rely on a "Local" clue to find the correct answer in this case. This means that we want *all four* distractors to make perfect sense with respect to the "Local" context of the blank (i.e. two words on either side). But we want all four distractors to sound odd, or to make no sense, when the whole clause is considered.

In the above example, the "Local" context of the blank is, "Since the _____ in the." The clause containing the blank is, "Since the _____ in the pits was salty." Water is the word deleted, and one possible set of four distractors is light, time, party, and night. All five words sound reasonable when placed in the "Local" context, "Since the _____ in the:" we can easily think of sentences which would contain a phrase like, "Since the light in the," e.g. "Since the light in the room was dim, John quit reading." However, the four distractors sound strange when placed in the clause, "Since the _____ in the pits was salty." This is because we do not usually speak of light, time, etc., as being salty. Only the correct answer, water, sounds natural in the clause, "Since the water in the pits was salty."

When the Structural Category is "Clause," as in this case, do *not* choose as distractors words that would make sense in the whole clause containing the blank. For example, material or mud would make perfect sense in the clause, "Since the _____ in the pits was salty." These words should not be used as distractors in this example, because there is nothing within the clause that would enable a reader to decide between material or mud or the correct word, water.

To repeat, the Structural Category chosen for this example was "Clause." Distractors are chosen which make sense in the "Local" context of the blank (two words on either side), but which do *not* make sense in the whole clause containing the blank. Only the correct word, water, makes sense there.

The above example illustrates the choice of distractors for a deletion with the Structural Category "Clause." The same process is used to choose distractors for deletions in other Structural Categories. For a deletion in a particular Structural Category, the distractors chosen should not make sense with respect to that category, but should make sense with respect to the *next smaller* category. We will give examples of distractor-choice for each Structural Category.

2.6.1.2. Local structural category distractors. The distractors chosen should not make sense even in the immediate context of the blank (two words on either side). Since this is the smallest or narrowest Structural Category, the distractors should not make sense with respect to any of the context surrounding the blank. Example:

With the edge taken off his hunger he set about _____
a fire in the potbellied wood stove.
"Local" context: "set about _____ a fire"
Deleted word: making
Possible distractors: cutting, surprising, making, calling

The four distractors describe activities that would not ordinarily be done to a fire, so all are inappropriate with respect to the "Local" context of the blank. Making is the only verb, of the five, which fits well in this context.

Note that a verb like quenching makes as much sense in the "Local" context, "set about _____ a fire" as the deleted word, making. Therefore, quenching should not be used as a distractor for this particular deletion. There is nothing in the local context which would allow a reader to decide between quenching and the correct answer, making.

For deletions in the "Local" and all other Structural Categories, choose distractors that are *grammatically* appropriate to the context. So, for example, if a transitive verb is deleted, do not use as a distractor a verb that can only be intransitive. In the above example, the verb sleeping should not be used as a distractor, because it can never take an object noun. A sentence like, "He set about sleeping a fire" is not just nonsensical, it is ungrammatical. Similarly, when you delete a verb that takes an infinitive, do not use as a distractor a verb that never takes an infinitive:

I want to go to the party.

If want is the deleted word, do not choose as a distractor a verb like *sit*, which never occurs with infinitives.

2.6.1.3. Clause structural category distractors: addendum. This Structural Category was illustrated in 2.6.1.1. The distractors chosen should make sense in the "Local" context of the blank, but not in the whole clause containing the blank.

For deletions of the category "Clause" (or of any other Structural Category), you should be careful to consider different interpretations that would allow some distractor word to make sense. For example, suppose we have the sentence:

He took his money to the bank.

If the deleted word is money, then good distractors would be shoe or nose, since one does not usually take such things to the bank. However, canoe would not be a good distractor. Although one does not usually take a canoe to a financial institution, one might take it to the side of a river--and if bank is reinterpreted in the latter sense, then canoe fits perfectly well in the sentence:

He took his canoe to the bank.

The same kind of problem should be guarded against with deletions of other Structural Categories.

2.6.1.4. Conjoined sentence structural category distractors. The clause containing the blank will be conjoined to another clause by means of a coordinating conjunction, such as and, but, yet. The distractors chosen should make sense in

the clause containing the blank, but should not make sense when the conjoined clause is considered. Example:

> It was _____ far to sea, and might have been entered as a sailing mark upon the chart.
> *Deleted word:* conspicuous
> *Distractors:* bleak, turbulent, desolate, humid

All five words are appropriate in the clause containing the blank, "It was _____ far to sea," but only conspicuous also fits with the conjoined clause, "(It) might have been entered as a sailing mark upon the chart."

2.6.1.5. Subordinate sentence structural category distractors. In some cases of this category, the clause containing the blank will be subordinate to another clause. Distractors should make sense in the subordinate clause itself, but not when the main clause is also considered. Example:

> He wondered at the multitude of corks that lay _____ on the surface of the water.
> *Deleted word:* bobbing
> *Distractors:* bleeding, evaporating, purring, groping

The subordinate clause containing the blank is, "that lay _____ on the surface of the water." All five verbs can reasonably appear in that clause, but in the sentence as a whole, bobbing is the only verb that would be associated with corks.

In other cases of this category, the clause containing the blank will have another clause subordinate to it. Distractors should make sense in the main clause itself, but not when the subordinate clause is also considered. Example:

> Although the usefulness of those tests has been questioned, they are apparently here to _____.
> *Deleted word:* stay
> *Distractors:* fight, tell, follow, wonder

The main clause, containing the blank, is, "they are apparently here to _____." As before, all five verbs make sense in this clause, but not in the example sentence as a whole.

2.6.1.6. Same paragraph structural category distractors. For this category, distractors should be chosen that make sense within the entire sentence containing the blank, no matter how long or complex that sentence is. But the distractors chosen should be inconsistent with or irrelevant to the information given in the rest of the paragraph. For example, consider the sentence, "Then _____ came upon me." Five words, all possible in this sentence, are faith, curiosity, hardship, panic, and understanding. But in the larger context of the paragraph containing the sentence, the proper word (of these five) becomes clear:

> In that instant of realization all my strength seemed to ooze out of me. Then _____ came upon me. I had a senseless, almost uncontrollable impulse to dash madly through the trees, regardless of direction, bears, or anything else. But I got hold of myself, decided on a course, and with forced calmness went forward, watching tensely for that breaking away of timber which foretells an approach to the sea.[6]

The deleted word, of course, is panic. The other four words are inappropriate to the paragraph.

2.6.1.7. Separate paragraph structural category distractors. This category will only be used for passages containing two or more paragraphs. Distractors should be chosen that make sense in the paragraph where the blank is located, but which are inconsistent with or irrelevant to information contained in other paragraphs. Example:

> But it was not its _____ that now impressed my companions, it was the knowledge that seven hundred thousand pounds in gold lay somewhere buried below its spreading shadow. The thought of the money, as they drew nearer, swallowed up their previous terrors.[7]

Five possible words to fill this blank are address, size, happiness, cottage, and owner. The correct word becomes obvious when you consider the paragraph preceding the one just given:

> The first of the tall trees was reached, and by the bearing, proved the wrong one. So with the second. The third rose nearly two hundred feet into the air above a clump of underwood; a giant of a vegetable, with a red column as big as a cottage and a wide shadow around in which a company could have maneuvered. It was conspicuous far to sea, both on the east and west, and might have been entered as a sailing mark upon the chart.

This paragraph discusses the immense size of the tree, and clearly points to size as the deleted word in the next paragraph.

2.6.1.8. More than two repetitions structural category distractors. This category is used only for passages of Difficulty Levels 1-4. The word deleted will be one which has been repeated several times in preceding text. Choose distractors which make sense in the sentence containing the blanks, but which are inconsistent with, or irrelevent to, the information in the preceding text. Example:

> Duck said "Look at me!
> Look at me, Rabbit.
> I can swim.
> What can you do?
> Can you swim, Rabbit?"
> Rabbit said, "Look at me!
> _____ at me, Duck."

The deleted word is look, repeated several times in preceding text. Distractors might be cry, fire, point, slide. All five words make sense in the sentence, "_____ at me, Duck." But the four distractors do not make sense in terms of the content of the preceding text.

2.6.1.9. Same sentence structural category distractors. This category is used for passages of Difficulty Levels 1-4. Distractors should be chosen which do *not* make sense in the context of the entire sentence containing the blank. If possible, the distractors should make sense in the "Local" context of the blank (two words on either side). Example:

> I want to hop like a _____.
> *"Local" context:* "like a _____.
> *Deleted word:* rabbit
> *Possible distractors:* turtle, wagon, peanut, dress

All five words make sense in the "Local" context, "like a _____." But in the sentence, "I want to hop like a _____," rabbit would be the most natural choice.

In very elementary texts, sentences may be very short, and so the "Local" context of the blank may be a whole sentence. In this case, simply choose distractors that do not make sense in the sentence.

2.6.1.10. Adjacent sentence structural category distractors. This category is used for passages of Difficulty Levels 1-4. Choose distractors that make sense in the sentence containing the blank, but that do not make sense when an adjacent sentence is considered. (The adjacent sentence may be either the preceding or the following sentence.) Example:

I like to see _____ come and go.

Five words which fit in this blank are ships, money, magic, sisters, weeks. But if we consider the immediately preceding sentence, the correct word becomes clear:

"We are going to look at ships," says David.
"I like to see _____ come and go."

In the context of the adjacent sentence, we can tell that the proper word is ships.

2.7. REVISING STRUCTURAL CATEGORIES

It is easy to see from the above discussion that the choice of distractors for a given deleted word depends intimately on what Structural Category was assigned to that word in Step Five. Occasionally, it may be very difficult to find four appropriate distractors for a deleted word in a particular Structural Category, but it may be much easier to find distractors if that word is assigned a different Structural Category. In such cases, it is permissible to change the Structural Category of the word and seek distractors appropriate to this new Structural Category. However, you should try to avoid such changes of Structural Category if possible. If you make a change, try to make it in the direction of equal representation of Structural Categories in the passage. Try not to change a deleted word *to* a Structural Category that is already over-represented in the passage. And try not to change a deleted word *from* a Structural Category that is under-represented in the passage.

2.8. MAKING UP TEST FORMS

When you have completed the above seven steps for each passage, you will have twenty-eight clozed passages, with four distractors for each deleted word in every passage. The only thing left to do is to combine the passages into Test Forms. Six passages of consecutive Difficulty Levels are combined into a Test Form. (Our Test Form 1, for beginners, contained only four passages.) In making up the Test Forms, be sure that each Structural Category and each Part of Speech Category (Tables 1 and 2) has at least some representation in each Test Form. If some Structural Category or Part of Speech is not represented, or is too weakly represented, on a given Test Form, you may discard one or more of the passages in that Form and choose a new passage or passages that better represent the slighted Structural Category or Part of Speech.

There is one further consideration to observe in making up Test Forms. It will sometimes be the case that the same word has been deleted more than once in the six passages of one Test Form. If this occurs, then be sure that at least one distractor also appears twice in the distractor lists of the six passages.

2.9. CLOZE TESTS: BACKGROUND AND ALTERNATIVES

The cloze procedure was introduced in the early 1950s, and has since been used to measure a variety of things, from readability and reading comprehension to proficiency in a foreign language. In form, a cloze test is a passage from which words have been deleted in some systematic fashion. The task for the test-taker is to recover the words that have been deleted.

How can people thus recover deleted words, and why does this serve as a test of comprehension? As a moment's reflection will reveal, any given word in a written text or spoken conversation is *not* entirely independent of the words around it, i.e. its context. You cannot replace a word with just any other word and still maintain good grammar and good sense. So th set of words that can go in a given blank in a passage is more or less constrained by the context--the remaining undeleted words in the passage. A reader who has read and understood a passage well will have a better chance of recovering the deleted word than one who has not understood the passage as well.

In traditional cloze tests, a very simple procedure is used to delete words from

a passage: starting at the beginning of the passage, every fifth word is deleted, no matter what that word might be. Using this procedure, both "content" words and "function" words are deleted. "Content" words are words that can be said to refer to things, actions, properties, etc. The major classes of content words are nouns, verbs, adjectives, and adverbs. "Function" words are words that do not really refer to anything in themselves, but rather specify the relationships between other words. Some of the major classes of function words are articles, conjunctions, and prepositions. By way of example, for the first two sentences in this paragraph, a strict cloze test would delete the following: a (article), used (verb), a (article), beginning (verbal noun), fifth (adjective), matter (noun), be (verb), content (noun), are (verb).

In cloze testing, there is a problem with deleting function words. Certain research has shown that when a reader uses context to recover deleted function words, he uses "Local" context, that is, only the immediate environment of the deleted word is useful or necessary to recover a deleted function word. In contrast, the information useful in recovering a deleted content word tends to appear farther away in the passage from the deleted word itself. So it can be said that correct recovery of a deleted content word tends to show a more general understanding of the content of the passage as a whole than does the correct recovery of a deleted function word.

In scoring a traditional cloze test, an answer is usually counted as correct only if it is the exact word that was deleted from the passage. There is a problem with this sort of scoring: surely a reader who chooses a synonym for the deleted word has understood the passage as well as the reader who chooses the exact word that was deleted. And a reader who chooses a word somewhat similar in meaning to the deleted word has probably understood the passage better than a reader who chooses a word entirely dissimilar in meaning from the deleted word. But all of these readers except the one who chose the exact word deleted would be graded as having missed the item, and would be judged to have not adequately understood the passage.

One possible way of dealing with this scoring problem is to count synonyms and words similar in meaning to the deleted word as correct answers. But then the problem arises regarding how similar in meaning a word must be to the deleted word in order to be counted as a correct answer. Counting words other than the deleted word as correct answers on a cloze test would make scoring the test very complicated and subjective.

To deal with these problems and others, a modified version of the close test was developed at the Division of Research and Evaluation of the New York State Department of Education. In this modified cloze test, only content words are deleted--in particular, nouns, verbs, adjectives, and adverbs. Furthermore, the modified cloze test uses a multiple choice format. To fill each blank in the passage, the reader must choose the deleted word from a list of five words. The distractors--the four incorrect words in the list of choices--are matched with the deleted word in certain ways. For example, if the deleted word is a noun, then all four distractors are also nouns, but the four distractors are not similar in meaning to the deleted word. Thus, if the testee has read and understood the passage, he should be able to choose the deleted word from the multiple choice list of five words.

In developing our cloze tests, we have followed some of the principles used on the modified cloze tests made at the New York State Education Department. In particular, we restrict deletions to nouns, verbs, adjectives, and adverbs, and we use a multiple choice format. Our tests also differ in some ways from the New York State cloze tests, with the main differences involving the system used to delete words from the passages and the method of choosing distractors. These differences grow from two sources--a closer view of the reading process and a desire to have a more direct relation to the instructional program. This chapter has described how to construct this kind of test, and Chapter I gives the reasons for the way this test is constructed.

2.10. VARIATIONS ON THE PROCEDURES

There are some other modifications that should be tried to see if they give a better picture of the test-taker's reading ability. We have four in mind. However, as the test is given to more children, as teachers incorporate the results in their instructional plans, as reading research reveals more about the reading process, and as readers like you get more familiar with the test, more ideas to try are bound to turn up. The changes we are thinking about include the following.

2.10.1. Controlling for omittables. We noticed that there were two kinds of items among all types of cloze tests: one type of item deletes a word that makes the sentence it is in no longer a sentence of English (the word is not omittable); the other cloze test item can delete a word which does not have this effect (the word is omittable). Compare these two items:

(a) He ran to _____ mother.
Answer: get
Type: Omittable
(b) He ran to get _____.
Answer: mother
Type: Non-omittable

This kind of variation among the items in a test may contribute to giving us a wrong idea about a student's comprehension ability. Interference from this kind of variation occurs in our cloze test as well as in others we have seen. The problem is a particularly interesting one because it suggests that different tasks may be involved for the test-taker: when the reader scans a passage that has omittable words deleted, the passage is readable as English. But when the reader scans a passage that has non-omittable words deleted, the passage is not readable as English. It could be that having a readable passage lowers the score of a test-taker, since there is no need to fill in the blanks to make English of the passage. On the other hand, it could be that having an unreadable passage also lowers the score of a test-taker, since it is so difficult to do the first part of the task, the scanning. Then, again, this could be an area of individual style differences or developmental differences.

We would like to see some research into this question, comparing tests that have only omittable items with tests that have only non-omittables and with tests that have a mixture. In the meantime, it is probably wise to be aware of this problem and to see if this variation explains any of the results that are otherwise not easy to understand. It might be possible to add this feature as an element to be balanced for across categories in the selection of distractors. At present, this seems to be too difficult to do, given the current large number of constraints on selection.

2.10.2. Structural category additions. For this test we did not allow two types of items--the extremes of Structural Categories. On the very "Local" end, we did not test at all for context cues that are morphological or phonological, i.e. none of the items show us whether a child is paying attention to noun number or verb tense restrictions or to the occurrence of consonants after a as opposed to an. If we had items like the following, that information might be available.

(a) Sally _____ to play.
Distractors: like, liked, get, want
Answer: liked

(b) John ahd a _____
Distractors: elephant, toy, umbrella, egg
Answer: toy

It may be that information of this type is useful, particularly when the reader is a beginner. The problems, of course, are many. For certain dialects of American English, the morphological and phonological systems would not be the same as those

assumed by the test. In such a case, we would end up with a test of which dialect the test-taker spoke rather than a test of reading. (It would probably be a bad dialect test, to boot). Furthermore, particularly with young readers or with speakers of English as a second language, such items might test their English language development rather than their reading. If such items can be handled with care and by fully informed teachers, they may yield some valuable information about beginning readers.

At the other extreme, we carefully omitted the "No Cue" category. It might be possible to construct items that test a more global and amorphous skill of reading--getting into the domain, or world, of the passage. Such an item would depend on the test-taker getting a sense of what the passage was about and using that sense to choose the right answer from among distractors that were from a different, and perhaps irrelevant, semantic domain. Two kinds of problems arise for anyone who tries to construct such an item: first, how reliable are the judgments concerning what the domain of a passage is and concerning how to assign distractors into alternate domains, and, second, how to eliminate the possibility of an alternate passage interpretation based on the choice of a wrong answer from a particular domain that then makes correct other wrong answers from that same domain. This latter problem is related to the theory of comprehension that is called "schema based." Both problems come from a basic fact about many words of the language: they are not totally and uniquely specified for use in one particular domain. The constructions into which a word enters--the semantic and pragmatic context--all contribute to what we would call its meaning, in an ordinary use of that term. Furthermore, even this complex entity called meaning can be, and is, further involved in rhetorical constructions ranging from metaphor to slang. Thus, many words can be used in many domains.

With respect to this issue of domain, we should note that an alternative plan is available: a test could be constructed so that all of the distractors are in the same domain as the correct answer. This would have the benefit of not giving away the answers to test-takers who have the skill to notice that one word in each set relates to a domain that is suggested by the passage. It would decrease the amount of passage independence in the answers. Since we do not yet know whether there is too much passage independence in this test, we do not know how much better the test would be if we did this. A reasonable suspicion is that a child who is skilled enough to take advantage of such a lapse in a reading test is demonstrating to us that he is a good reader anyhow. Whether such a child demonstrates that by doing the cloze task we have set for him or by doing this kind of domain sorting task may be irrelevant. A problem would arise in interpreting the results as strengths or weaknesses related to comprehension as tested in this cloze test. And this alternative plan may have another problem in it; it may make the test more of a vocabulary test about individual words than a test about whole passage comprehension. In fact, a test like this might be a much better test of the subtle aspects of word knowledge than many vocabulary tests currently in use.

2.10.3. Paragraphing problems. At the two ends of the scale of reading difficulty, paragraphing conventions are a problem area for this test. To keep very difficult passages at a reasonable length, it is often necessary to use only one paragraph. However, as is discussed above, the very easy passages have many paragraphs, perhaps too many from the point of view of an adult reader. In addition, a passage with dialogue has more paragraphing than one without, and, consequently, the narrative form has more than the essay form. Actually, the paragraphing problem extends beyond this test and is an issue in both reading and writing for both practitioners and researchers.

Everyone can agree that paragraphing displays units of cohesive thought in a written text, and that there are conventions of written language that determine how paragraphing interacts with quotation marks in texts with dialogue. So, paragraphs are somehow related to thought and language. It is less obvious, but also true, that paragraphs are also related to visual aspects of written texts. The paragraphing that appears in newspapers is affected by the width of a newspaper column--shorter paragrpahs go with narrow columns. The indentation used for lists and enumeration are visually similar to paragraphing. There is some evidence that

the arrangement of text on a page affects comprehensibility. (This may help account for the paragraphing strategies used in beginning texts.) So, paragraphs are somehow related to visual concerns. Furthermore, editors and publishing houses have individual differences about what constitutes a paragraph, and written texts display the results of these differences.

There are three consequences of this issue for the cloze test: first, the number of same and separate paragraph cue items are unequally represented among the different passages and different test levels; second, the items that test same or separate paragraphs are not equivalent (in fact, they are testing different things in some passages than they are in others); third, the interpretation of results (that is, what we know about the test takers' comprehension strengths and weaknesses) is affected by both of the first two factors. There is an adjustment that can be made in the test-making procedure to solve these kinds of problems. A reasonable set of criteria to identify a paragraph in a standard way can be developed and can be used as a tool to modify the paragraphing in passages on the test or to choose only those passages which meet the criteria for use on the test. A good way to start working on the criteria would be to analyze the paragraphing strategies apperent in the different kinds of written texts that children in different grades have to read in their daily activities. It may, of course, turn out that several different sets of criteria are needed and should be represented in the test because of differences related to grade level or to the academic content of the text. Such an analysis could have a bonus effect of letting us know more about how to instruct and assess skills related to paragraphs in writing as well as in reading.

2.10.4. Stratification by category. The current tests strive for as equal a representation of the Structural and Parts of Speech Categories as is possible given the individual passages used and available to be used. Some stratification became necessary because of the differences between the text available for the lowest reading levels (1 through 4) and all of the higher ones. So, the categories in the Test Form for beginners are different than the categories in the other tests. More stratification by category may be desirable. The results might show, for example, that local and clause items do a good job of ranking children according to their reading ability in grades three and four, but that these items do not discriminate at all among test takers who are in grades five and six. If this or something similar turns out to be the case, based on an analysis of pilot data, the alternative to try is to stratify the representation of categories across and/or within tests. Such an alternative could have a beneficial effect on the usefulness of the test for instructional purposes as well as for program evaluation purposes.

2.11. SUMMARY

These alternatives are probably useful for instructional personnel to think about, not only so that they can use this test but also as a frame of reference for thinking about other tests, informal classroom assessment, and the activities involved in reading. There are some other issues that may come to mind. For instance, in this test some of the items require the test taker to go past the blank in the passage in order to arrive at the answer, while other items require the test taker to go back to something written earlier in the text. If we categorize the test items according to their forward or backward requirements, we might be able to look at the results in order to see some developmental trends or some differences in individual styles or some differences in reader strategies related to the nature of the written text.

As school personnel become familiar with our test building, we expect that their ideas about reading, comprehension, and testing will be interesting, valuable, and unique because of their perspective. They have particular ideas about what is important in reading, and they stress certain aspects of reading in their instructional program. This book should help them design the evaluation and assessment components of their programs. Instructors can use the two principal testing notions described in this chapter: first, individual test items can be chosen according to categories that are seen as relevant to reading instruction, and second, distractors in a multiple choice test can be carefully chosen to ensure that the item tests exactly the

category that it claims to test. By using this format and these procedures, instructional teams can build reading tests that are tailor-made to fit the students, materials, methods, and basic philosophies of their reading programs. This chapter has reported on how we built our tests; the first reported on why we built them this way; the next chapter considers what can be found out about test-takers once we have the results from our tests in hand.

FOOTNOTES

[1]See Freeman, to appear, for a discussion of the limitations of readability formulas as a measure of how appropriate a passage is for a given group of readers.

[2]The underlined part of the example is the noun that should not be a candidate for deletion.

[3]Some of these examples are taken or adapted from passages found in textbooks used at the elementary and junior high school levels.

[4]J.R. Ullman, "Top Man," in *Introduction to Literature*. Lexington, Mass.: Ginn and Company, 1975, p. 7.

[5]See fn. 4.

[6]Willoughby Barrett, "One Alaska Night," in Stephen Dunning et al., *Focus*. Glendale, Illinois: Scott, Foresman and Company, 1969, p. 330.

[7]Robert Lewis Stevenson, *Treasure Island* (Great Illustrated Classics Series). New York: Dodd, Mead and Company, 1956, pp. 277-278.

Chapter III: Interpreting the Results of a Test

3.0 INTRODUCTION

In this chapter we want to consider what kind of information about a child's reading ability can be made available from the tests we built. This chapter is particularly addressed to those who will find the test results most useful in their day-to-day work, i.e. to classroom teachers. In case this is the chapter you have begun the book with, we will also discuss how we built the tests and how they are related to reading comprehension.

Reading comprehension is a very complex process. Through research, people are now learning something about the activities involved in reading, in the understanding of written text. One thing we can say in general is that reading is an active process; it is not just like taking a photograph of a written page and transferring that photograph to your head. All of the activities of reading, from identifying letter-shapes to understanding whole passages and texts, require the reader to actively apply himself, using his strategies of perception, his knowledge of the English language, and his knowledge about the world in order to grasp and organize the information in the text so that it makes sense to him. Somewhere along the line, a child must learn the strategies that will direct him in understanding the various units of written text, in integrating those units into larger units, and, in this way, in understanding whole written texts. We might say that learning to read is a process of learning to utilize such strategies effectively. In any group of children, there will be individual differences from child to child in what strategies are known and used effectively, what strategies are used less effectively, and what strategies are not used at all. (This might even be the case for a group of children who are all placed at the same general reading level.) And for an individual child, there will be a developmental process in the course of his learning to read wherein he comes to use more and more of these strategies effectively in comprehending written texts. Our test is intended to provide information about how well a child uses some of the strategies that we think are important to the activity of reading comprehension. There are other important skills and strategies which this particular test does not provide information about. However, the information it does provide should give some insight into each child's reading development, and it should help us to compare and group different children as to some of their reading strengths and weaknesses.

In form, our test is a "multiple choice cloze test." Each test consists of a set of written passages, drawn from basal readers, books in various content areas, or literature. A certain number of words are systematically deleted from each of the passages. The child being tested must pick, for each item, the word deleted out of a list of five words. For example, the following passage was part of an earlier multiple choice cloze test:

> After that, any afternoon Kathy __1__ to the playground to __2__ , Jimmy was waiting for her. The __3__ dog came out and __4__ them.

(1)	(2)	(3)	(4)
came	cook	janitor's	gurgled
hoisted	index	stone's	scared
felt	shift	baseball's	delivered
sighed	bargain	orange's	watched
rolled	practice	barrier's	seeded

The idea behind this kind of test is that the child who has read and understood the text surrounding the blank will have a good chance of picking the correct word from

the list of five words. But the child who has not understood what he has read will find it much more difficult to make the correct choice.

The first multiple choice cloze tests were developed by Dr. Robert P. O'Reilly and his colleagues at the New York State Department of Education (1975). The tests that we built incorporated some new ideas in test construction which we hope will provide teachers with some useful information about the reading skills of children taking the test. As far as we know, no one has ever constructed a test to provide the particular kind of information we tried to get at. We hope that the test results will help to give teachers some insights into the skills involved in reading comprehension, and the reading abilities of individual children.

Our test has two principal goals. The first is to provide some detailed information to the teacher about a child's strengths and weaknesses in reading comprehension. This in itself is different from most reading comprehension tests currently in use. There are many tests that compare a child's reading comprehension to that of his peers. These tests tell a teacher, for example, that a particular child is a half year ahead, or a year behind, his "expected" level. What we want to do with our test is to look at some of the particular skills that might go into reading comprehension, and provide information about a child's competence in handling these skills. This information should then be useful to the classroom teacher in developing appropriate reading instruction. In order for the test to be useful, each person working with its results must understand something about *how* it tests reading comprehension.

The second main goal of our test is to help the classroom teacher think about what is involved in reading comprehension--what a child does when he comprehends (or fails to comprehend) something he has read. We want to emphasize the teacher's role in using our test, in helping it to accomplish what it is supposed to accomplish. Unlike most reading tests, our test is intended not only to assess the reading level of a child, but to tell us something about what kinds of things a child is doing well and what kinds of things are giving him trouble in reading. One of the chief values of this information lies in how it can be used as a basis for teaching reading skills to the child--the task facing the classroom teacher.

The construction of our test is based in part on some facts about English grammar which will already be familiar to English and reading teachers. Various types of comprehension problems will correspond to different kinds of performance on the test. The various classes and categories used in constructing the test will tell us something about each child's reading comprehension. So the first task for the teacher is to become familiar with these classes and categories. This is what we will now explain.

3.1. THE CATEGORIES USED IN THE TEST

In making these cloze tests, we used a new strategy for deciding which words to delete from the passages, and we used a new strategy for picking distractors to match with them. (The "distractors" are the four incorrect words that appear with each deleted word in the five-word lists.) In this chapter, we will not go into how we picked the distractors, but we will explain something about how we picked the words to delete, which will indicate the basic principles underlying the test. (For a more complete explanation, and a discussion of distractor choice, see the second chapter, "Building a Group Test.")

All cloze tests require the reader to make use of *redundancy* in the text to fill in the missing words. That is, the reader must use clues built into the remaining portions of the text which will suggest to him what word has probably been deleted from each blank. Such clues may occur in various places in the text, in relation to the blank. Some clues may be close to the blank they provide information about, while others may be far away. Some blanks may occur in the same simple grammatical construction as their clue, and others may be in very complex grammatical constructions. Items in these tests are categorized according to where the clue is located in the context surrounding the blank it is related to. These categories will be discussed below.

It seems likely that the relative distance between a blank and its clues, and

the type of grammatical structure containing the blank and its clues, will affect the reader's ability to use those clues to fill in the blank. For example, it would be reasonable to suppose that clues which lie close to a blank, and in the same simple sentence, will be more easily accessible to most readers than clues which require understanding and relating several paragraphs, or clues which lie in a complex grammatical construction with respect to the blank. But it is equally probable that different children have different strengths and weaknesses in reading. So there may be children who do poorly on some test items that seem to be easy--items where the blanks are close to their clues--and yet do better on items that seem harder--where clues and blanks are farther apart. The test results are intended to indicate each child's pattern of strengths and weaknesses in dealing with test items of the various categories. So each test presents items covering the whole range of categories--from items requiring a reader to use context clues local to a blank all the way up to clues that require a general understanding of the passage as a whole. Every test passage, whether it is a simple one drawn from a basal reader or a complex one drawn from a Joyce or Melville novel, covers a wide range of item categories. So for each child, no matter what his reading level is, the test results should provide the same kind of information about his strengths and weaknesses in reading comprehension.

In connection with this, we should point out that we did not try to delete hard words from hard passages. Sometimes we deleted very easy words from hard passages. The reason for this is that we wanted to test the child's comprehension of connected texts, and not the size of his vocabulary. In addition, we matched the grade level of the distractors with that of the deleted word. So, for example, if a third grade word was deleted from an eleventh grade passage, the distractors we picked were all third grade words.

In the above discussion, we have been talking about test items of various categories. Each test item is classified according to two types of categories--Structural Categories and Parts of Speech Categories. The Parts of Speech Categories just tell what parts of speech a deleted word is. Some of the Parts of Speech Categories we use are very familiar (noun, verb, and adjective, for example). Some will be less familiar. We will talk about the Parts of Speech Categories later, but first we will discuss the Structural Categories.

3.1.1. Structural categories. The Structural Categories tell where important clues lie with respect to the blank. In order to illustrate this, we will give examples of one test item where the clues are relatively close to the blank, and one item which requires a reader to deal with a larger chunk of the passage. In the first example, the clue that suggests what goes in the blank lies in the same simple clause as the blank:

A box of hazel nuts _____ behind the stove,
and seeing them turned his thoughts to summer
and the good times he had.
Words to choose from: milked, skated, yelled, dried, melted

Try substituting each of these five words in the blank. Four of them will sound very strange in context: a box of nuts might dry behind the stove, but would not yell, melt, etc. Furthermore, in order to pick dried as the proper word, all you need to consider is the simple clause containing the blank, "A box of hazel nuts _____ behind the stove." The sentence goes on with a coordinate clause, "and seeing them turned his thoughts... ". However, this coordinate clause is not really needed to pick dried as the proper word from among the five words given; only the simple clause is needed.

The "box of hazel nuts" is an example of a fairly easy clue in the same simple clause as the blank. We will now give an example of a kind of clue that may be more difficult. This clue is altogetehr outside the sentence containing the blank. One of our test passages contained the following sentence:

Then _____ came upon me.

Five words, all perfectly possible in this sentence, are faith, curiosity, panic, hardship, and understanding. How are we to decide which of these five is the right word? Obviously, unless we look beyond this single sentence, we cannot tell. But in the larger context of the paragraph containing the sentence, it becomes clear that one of these five words fits better than the rest.

> In that instance of realization all my strength seemed to ooze out of me. Then _____ came upon me. I had a senseless, almost uncontrollable impulse to dash madly through the trees, regardless of direction. But I got hold of myself, decided on a course, and with forced calmness went forward.

The deleted word, of course, is panic. The other four words, though they make perfect sense in the sentence alone, are inappropriate to the paragraph as a whole. The clues for picking the right word appear in the same paragraph with the blank. In order to have a good chance of getting this item right, a child would have to read and understand at least part of the content of the whole paragraph. It would not be enough just to read and understand the single sentence containing the blank.

We have just seen two examples of deleted items, one easy one, where the blank is rather close to the clues that can help us pick the deleted word, and one harder one, where the clues and the blank are farther apart. We mentioned before that our test is organized into certain categories. One set of categories divides up the items (blanks) on the tests according to where in the passage the clue to each item is located, relative to the blank. We call these Structural Categories. The two examples just given illustrate two of these Structural Categories. In addition, there are other Structural Categories, and we will give examples of all of them later.

In the first example above, ("the box of hazel nuts"), the clues that helped us pick the proper word occurred within the same simple clause as the blank. So this item is given the Structural Category "Clause." In the second example ("panic came upon me"), the clues lie outside of the sentence containing the blank, but within the same paragraph. The Structural Category here is "Same Paragraph." Each blank in a passage is assigned some Structural Category. For most of the passages in our cloze tests (those at third grade level and above), the Structural Categories are the following: "Local," "Clause," "Subordinate Sentence," "Conjoined Sentence," "Same Paragraph," and "Separate Paragraph." (For first and second grade passages, the set of Structural Categories is different, in part: "More than Two Repetitions," "Same Sentence," "Adjacent Sentence," "Same Paragraph," and "Separate Paragraph.") To repeat, those Structural Categories tell us where the major clues lie in relation to the blank that they provide information about. We have already illustrated two of the Structural Categories, "Clause" and "Same Paragraph." We will now give examples of the others.

3.1.1.1. Local. This is the category used when the clue is provided by the *immediate* context of the blank (within the same clause and no more than two words on either side of the blank). The deleted word itself, but none of the four distractors, will make sense in this immediate context. Example:

> With the edge taken off his hunger he set about _____ a fire in the pot-bellied wood stove.
> *Words to choose from:* cutting, making, surprising, knowing, calling

The immediate "Local" context of the blank is "set about _____ a fire." The four distractors describe activities that would not ordinarily be done to a fire, so all are inappropriate in the "Local" context. Of these five verbs, making is the only one that fits well in the "Local" context. If the child can read and understand only this "Local" context, he will understand that the deleted word must be something that is done to a fire. With only this much knowledge, he should be able to pick the right word from the five-word list.

3.1.1.2. Clause. The clues for choosing the proper word should come from the

same simple clause that contains the blank. We have already given an example of an item of this Structural Category (the "box of hazel nuts" example in 3.1.1).

3.1.1.3. Conjoined sentence. The clause containing the blank will be conjoined to another clause by means of a coordinating conjunction such as and, but, or yet. The clues for choosing the proper word from the list of five should come from the coordinate clause. For example:

> It was _____ far to sea, and might have been entered as a sailing mark upon the chart.
> *Words to choose from:* conspicuous, bleak, turbulent, desolate, humid

All five words are appropriate in the clause containing the blank, "It was _____ far to sea." But only conspicuous fits with the coordinate clause, "(It) might have been entered as a sailing mark upon the chart." Items of this type require the child to understand the coordinate construction and to use clues in the clause coordinate with the clause containing the blank.

3.1.1.4. Subordinate sentence. There are two different cases of this Structural Category. In the first case, the clause containing the blank is subordinate to another clause (the main clause), and clues for choosing the proper word to fill the blank appear in the main clause. Example:

> He wondered at the multitude of corks that lay _____ on the surface of the water.
> *Words to choose from:* bleeding, laboring, evaporating, groping, bobbing

The subordinate clause containing the blank is a relative clause, "that lay _____ on the surface of the water." All five words can reasonably appear in that subordinate clause, but in the sentence as a whole, bobbing is the only verb that would naturally be associated with corks.

In the second case of "Subordinate Sentence" items, the clause containing the blank will be a main clause which has another clause subordinate to it; clues for picking the proper word to fill the blank will appear in the subordinate clause.

> Although the usefulness of these tests has been questioned, they are apparently here to _____.
> *Words to choose from:* stay, fight, tell, follow, wonder

The main clause containing the blank is, "they are apparently here to _____." As before, all five words make sense in this clause, but the sentence as a whole suggests that stay is the right word. Both kinds of "Subordinate Sentence" items require the child to understand the subordinate construction: the former requires using clues from a main clause in order to choose the right word to fill a blank in the subordinate clause; the latter requires using clues from a subordinate clause to fill a blank in the main clause.

3.1.1.5. Same paragraph. We already gave an example of this Structural Category. (The example contains the sentence, "Then panic came upon me.") Here, clues for picking the correct word appear in the same paragraph as the blank, and the child must read and understand at least part of the content of the whole paragraph in order to choose the right word.

3.1.1.6. Separate paragraph. This Structural Category is very similar to the previous one, but clues for picking the correct word appear in a *different* paragraph from the one containing the blank. To choose the right word, the child must understand something about the content of the paragraph or paragraphs containing the clues, as well as the one containing the blank, and he must understand something about how the paragraphs are related to each other in the passage as a whole. We think that if a child is consistently able to get "Same" and "Separate Paragraph" items correct, he shows evidence of really understanding what the passage is about. An example of the "Separate Paragraph" category can be found in the previous chapter.

3.1.2. Lower grade level structural categories. In passages of grade levels one and two, we have used some different Structural Categories in our tests. We use

the categories "Same Paragraph" and "Separate Paragraph," which also appear at grade level three and above. But in the simpler passages, and especially at grade level one, the division between paragraphs does not seem to be so important (or to function in the same way) as in more advanced writing. So at grade levels one and two, the difference between the categories "Same Paragraph" and "Separate Paragraph" is not so important as it is at higher grade levels. Both categories indicate that the clues to be used to fill a blank are fairly far away from the blank itself.

There are three Structural Categories used in grade levels one and two which do not appear at all at higher levels. These are discussed below.

3.1.2.1. More than two repetitions. Often in texts written for beginning readers, a single word is repeated again and again--sometimes twelve or fifteen times in a short passage. This is apparently done to give the child repeated exposure to the word so that he will remember it. If a word is deleted that has occurred more than twice before in the same passage, it is given the Structural Category "More than Two Repetitions"--which we sometimes abbreviate "+2 Repetitions."

3.1.2.2. Same sentence. This category is used (in grade levels one and two only) whenever the clues for guessing a deleted word come from the same sentence as the deleted word itself. At this level, we are using the usual, well-known definition of "sentence," i.e. a string of words that begins with a capital letter and ends with a period.

3.1.2.3. Adjacent sentence. As the name implies, this category is used when the blank occurs in one sentence and the clues for guessing the deleted word occur in the *next sentence*, either before or after the one containing the blank. This category, like the two we just described, occurs *only* in grade levels one and two. Examples of these three categories can be found in the previous chapter.

3.1.3. Parts of speech categories. In addition to a Structural Category, each deleted word in our test is given a Part of Speech Category. The Structural Categories tell us where the clues can be found that help us guess the deleted word. The Parts of Speech Categories tell us what part of speech the deleted word is. We used eight Parts of Speech Categories. Seven of them appear on tests at every grade level. Only the category "Adverb" is different: no adverbs were deleted on tests at grade levels one and two.

In assigning a Part of Speech to each deleted word in our tests, we are trying to get at another sort of problem a child might have with reading comprehension. For the child who is not yet an expert reader, we think that some of the Parts of Speech Categories might pose more difficult comprehension problems than others. If a child (or group of children) does badly on the test on one or two specific categories, then that group of children should profit by reading and writing instruction that concentrates on those categories. We do not think that all our Parts of Speech Categories will be equally useful. For example, it does not seem likely that any child will do better with nouns than with verbs--or vice versa--in his reading comprehension. But some children may not handle verbal nouns (gerunds), like running or eating, as well as they handle ordinary nouns like table or window. We will now describe our eight Parts of Speech Categories, and give examples of some of the less familiar ones.

3.1.3.1. Adjective and adverb categories. The words we deleted to make up our cloze tests are either nouns, verbs, adjectives, or adverbs. Two of our Parts of Speech Categories are "Adjective," which contains all deleted adjectives, and "Adverb," which contains all deleted adverbs. As previously noted, adverbs are deleted only on passages at grade levels three and above, and never on passages at grade levels one and two. Some kinds of adjectives and adverbs were not deleted; the rules for deletion are given in Chapter II. For the nouns and verbs we deleted, we used three distinct categories of nouns and three distinct categories of verbs. These are discussed below.

3.1.3.2. Noun categories. The three classes of nouns are "Nouns," "Verbal Nouns," and "Noun Heads." What we have called "Verbal Nouns" are words that you probably know as gerunds--verbs ending in -ing that are used as nouns. Here are a couple of examples:

A box of hazel nuts dried behind the stove, and seeing them turned his thoughts

to summer and the good times he had.
I saw a blurred stirring in the shadows under the hemlocks.

The underlined gerunds are given the Part of Speech Category "Verbal Noun." The Parts of Speech Categories and the rules for assigning deleted words to the categories are particularly designed for this test. While they are based on linguistic research, they differ from a linguistic analysis to the extent necessary to be useful for test and instruction related to reading comprehension.

3.1.3.2.1. Noun head. This is the noun category that may be somewhat unfamiliar to you. The idea here is that a noun may either be simple and independent, or it may serve as the "head" of a more complex construction. For example, boat is a simple noun in the sentence:

The boat is sinking.

The most familiar example of a noun heading a construction is a relative clause. Example:

The boat that hit the rock sank.
The man who they caught is a spy.
John, whom you met, is coming tonight.

Boat, man, and John are "head nouns" of relative clauses in these examples, and get the Part of Speech Category "Noun Head." When a noun heads a prepositional phrase, it is also placed in the "Noun Head" Category. Examples:

The cost of beef is exhorbitant.
The water in the pits was salty.
His naive belief in the truth of the legend led him to...

3.1.3.2.2. Noun. But when modifiers precede a noun, that noun is *not* classed as a "Noun Head," but as a simple "Noun." Examples:

Each man tried his best.
Three mighty men appeared.
A blue tablecloth was on the table.

The Part of Speech Category "Noun" contains all nouns that are not either "Verbal Nouns" (gerunds) or "Noun Heads." So man, men, and tablecloth in the three sentences above are placed in the "Noun" Category. So is the noun boat in our earlier example sentence, "The boat is sinking." Some other "Noun" examples are the following:

He found himself on his hands and knees in the thin surf of the shore.
I jerked my head around to look.
He turned his eyes upon me with a deadly look.

3.1.3.2.3. Verbal noun. On many word lists, some English words are listed as verbs, but these same words occur frequently as nouns in children's texts. Usually, suffixes like -ing signal the presence of a verbal noun. For example:

Running is fun.
John runs fast.

In the first case, the verb run has been made into a verbal noun and functions as the subject of a sentence, just as any noun could. In the second sentence, the verb run acts solely as a verb.

3.1.3.2.4. Differentiating noun categories. Notice that you cannot tell whether a word is a "Noun," a "Verbal Noun," or a "Noun Head" just by looking at the word itself. You also have to look at the sentence the word occurs in. For example, sleep-

ing is a "Verbal Noun" in the sentence:

Sleeping is my favorite pastime.

But it is a present participle, and not a noun at all, in the sentence:

John is sleeping.

Likewise, boat is a simple "Noun" in the first sentence below, but it is a "Noun Head" in the second:

The boat is sinking.
The boat that hit the rock is sinking.

3.1.3.3. Verb categories. As with nouns, there are three Parts of Speech Categories for verbs--"Verb," "Participle," and "Complement-taking Verb."

3.1.3.3.1. Participle. Verbs in the form of past and present participles are placed in the "Participle" Category. Examples:

The horses are sleeping in the barn.
John hasn't heard the news yet.
I had finished my work by noon.
He found himself staggering up the stairs.

In addition, participial verbs in "adjective" constructions are placed in the "Participle" Category. Examples:

I went forward, watching tensely for bears.
Clay gagged, with the salt water strangling him.

We found quite a few such participles in "adjective" constructions in the passages we used for our cloze tests.

3.1.3.3.2. Complement-taking verbs. Those verbs that are associated with subordinate clauses. For example, verbs that precede that plus a subordinate clause:

John said that it's going to rain.
It seems that Harry will be there.

Sometimes the word that may be omitted:

Mary thinks that she's beautiful (or) she's beautiful.

Verbs taking direct quotes are classed as "Complement-taking Verbs." Example:

"Play ball!" the umpire cried.

Verbs associated with infinitives and many participial constructions are also classed as "Complement-taking Verbs:"

I want to eat.
All my strength seemed to ooze out of me.
I jerked my head around to look.
John enjoys kissing girls.
I found myself slipping into bad habits.
I approve of John's playing the flute.

3.1.3.3.3. Verb. Verbs that are neither "Participles" nor "Complement-taking Verbs" are placed in the simple "Verb" Category. As with the nouns, you cannot tell which category a verb should go in just by looking at the verb itself. You also have to look at the sentence the verb occurs in. Earlier, we gave examples

where sleeping might be either a "Participle" or a "Verbal Noun," depending on its context:

John is sleeping. (Verb)
Sleeping is my favorite pastime. (Noun)

Also, its context can determine whether a verb goes in the "Complement-taking Verb" Category or in the "Verb" Category. In the first sentence below, want is classed as a "Verb;" in the second sentence, it is a "Complement-taking Verb:"

I want some more mashed potatoes.
I want to meet your friend.

3.1.4. Summary of test categories. This completes our discussion of the classes and categories that we used to construct the cloze tests. In summary, we will collect all the Structural Categories and Parts of Speech Categories together into two tables:

Table 1
Structural Categories

Tests at Grade Levels One and Two	*Tests at Grade Levels Three and Above*
More than Two Repetitions	Local
Same Sentence	Clause
Adjacent Sentence	Conjoined Sentence
Same Paragraph	Subordinate Sentence
Separate Paragraph	Same Paragraph
	Separate Paragraph

Table 2
Parts of Speech

Noun	Verb
Verbal Noun	Participle
Noun Head	Complement-taking Verb
Adjective	Adverb

3.2. WHAT DO THE TEST RESULTS MEAN?

Each child's performance on our cloze test is reported in terms of these Structural Categories and Parts of Speech. For example, the test results might show that a particular child got sixteen out of twenty-one possible items correct in the Structural Category "Clause," but only got ten out of eighteen possible items correct in the Structural Category "Same Paragraph." This would mean that in sixteen of twenty-one cases (76%), the child picked the correct word to fill the blank when he had to look in the same clause as the blank to find information about what word to pick. But when he had to look outside the sentence containing the blank and find this information somewhere in the same paragraph as the blank, he picked the correct word in only ten out of eighteen cases (56%). This is one kind of result we might expect on the test: since "Same Paragraph" information is generally farther away and frequently harder to get at than "Clause" information, some children are more likely to do well on "Clause" items than on "Same Paragraph" items. Of course, the results might not always come out so neatly--some children might do better on items of the latter category than on those of the former.

The test results will also report the child's performance on Parts of Speech Categories. For example, a particular child might get nine out of sixteen (56%) "Noun Head" items correct, while doing better on simple "Noun" items, getting twenty out of twenty-seven possible items (74%). What could these results reveal about this individual child's reading comprehension? In this case, the results might mean that the child sometimes becomes confused, in his reading, by complex constructions where a noun serves as the "head" of a clause or phrase.

We will now give some more examples of possible test results, and say a little

about what the results might show about a child's reading comprehension. However, we cannot anticipate or discuss every possible set of results that might occur when children take these cloze tests. What teachers can do in order to make good use of the test results is this: look at the test results for an individual child, as represented in terms of the Structural Categories and the Parts of Speech. Try to decide what these results reveal about the individual child's reading comprehension skills. Which categories does the child do well on? Which does he have trouble with? Are there any that he does not seem to understand at all? The answers to these questions should help you to place children with similar skills and weaknesses in reading comprehension into groups and to develop appropriate instructional strategies to help each child or group of children with the specific reading problems that are revealed by these tests. (The following chapter will help with this by making some suggestions for instructional strategies.)

3.2.1. Some possible patterns of test results: structural categories. For tests of grade level three and above, there are six Structural Categories. These categories represent different kinds of tasks that confront the child taking the test. We have constructed the test so that, for items in the "Local" Category, the child will find information in the immediate vicinity of the blank which will indicate what word to choose; for items in the "Clause" Category, such information will be found in the same clause as the blank, but outside the immediate vicinity. The other categories behave similarly; for example, items in the "Separate Paragraph" Category will lead the child to use information from a different paragraph from the one containing the blank in order to choose the proper word to fill the blank.

Suppose that some individual child does reasonably well on test items in the "Local" and "Clause" Categories, but performs worse on "Subordinate" and "Conjoined Sentence" items, and worse yet on "Same" and "Separate Paragraph" items. In this case, clues relatively close to the blank, and clues that share relatively simple constructions with the deleted word, are found and used successfully. But items that require the child to work through more complex sentences, or to relate information from other sentences or paragraphs, are not handled so well. What might this performance say about the child's reading? One possible explanation for these results would be that the child is reading in relatively small chunks, and for one reason or another, is not able to process complex sentence structure very well in his reading, nor to use information from one sentence to help him understand another.

Suppose, on the other hand, that a child does well on "Local" and "Clause" items, and also on "Same" and "Separate Paragraph" items, but does significantly worse on "Subordinate" or "Conjoined Sentence" items, or both. These results would provide some evidence that the child is getting a general understanding of the content of the passage, but is having trouble reading sentences with complex structure. (Depending on age, children may also have some problems using and understanding certain complex sentences in oral language--and this could be one source for the difficulty with items of those categories in reading. In the next chapter, we will mention this problem again and make some suggestions that might help in dealing with it.)

If a child does well on "Local" and "Clause" items, and also on "Subordinate" and "Conjoined Sentence" items, then he is apparently reading and understanding each sentence of the text adequately. However, a child might adequately understand each sentence and yet still not understand how the sentences of the text relate to each other, or what the passage as a whole is trying to say. A child in this situation might do well on the above four categories, but significantly worse on items that test clues of the paragraph type. There might be a number of reasons for performance of this kind. A child might have a general problem in remembering and applying information from one part of a passage to help him understand something in another part of the same passage. Or it might simply be that one or more of the passages on the test requires some specific background knowledge to enable the reader to understand it--and the child taking the test happens to lack that background knowledge. (To understand how this works, try reading some passage of technical writing in a field you are not familiar with. You will probably be able to understand each sentence pretty well, but when you are finished, you may not have much idea of what the passage as a whole was trying to say.)

On tests of grade levels one and two, some children may do badly on items of

the "More than Two Repetitions" Category. As we pointed out above, very elementary texts often repeat the same word over and over, and a child who misses many such items may not be aware of this characteristic of elementary texts. Even children who are good readers may have trouble here. Frequent repetition of words in elementary texts tends to make those texts unlike spoken language, where we do not customarily repeat a word often in a short amount of time. Yet a child who reads very well may expect the written text to be similar to the oral language he constantly hears and is familiar with. (Indeed, one goal of early reading instruction should probably be to promote the expectation that written language will be largely similar to the spoken language with which the child is so familiar.) It is possible, then, that frequent repetition of a word, in violating this expectation, could lead to confusion, and result in a child who reads well, doing worse on "More than Two Repetitions" items than on the other Structural Categories on elementary texts.

Many teachers have had the experience of getting mixed messages from children about their reading ability. Often, listening to a child read aloud leads anyone to believe that the child has problems with reading; but talking to the same child about what he has read (sometimes about a story he has just read aloud), leads to the opposite belief--that he is a good reader. Children like this might show a pattern of results on this test that distinguishes them from others. They might do very well on items that test for the ability to use "Same" and "Separate Paragraph" cues for comprehension and very poorly on items that test "Local" cues for comprehension. People who are fluent readers have been known to make errors on the details of a written passage. Often this is not noticeable because the detail of a passage is not important or because whatever was not read properly is redundantly available elsewhere in the text of the passage. Related to this general phenomena is the whole problem of proofreading and copy-editing. There are an amazing number of little misprints and typographical errors that remain in written text even after it has been carefully reviewed by several people. As a matter of fact, this book probably contains some. A very well known oral reading test (the Gates-McKillop) contains one error that is hardly ever noticed by the clinicians and teachers who use it very frequently. Children who make local but not many global errors on this test may be very good readers in terms of comprehension, which is all that this test attempts to test. These kinds of results can serve to confirm a teacher's informal assessments of the child's reading ability and to assist in the decisions regarding the desirability of intervention or the strategies for intervention to increase oral and detailed reading skills.

There might be some patterns of test results which will be very hard to interpret in terms of the classes and categories of this test. For children with such results, the cloze test may be less useful in helping the teacher understand what problems the child is having in his reading. One such pattern would arise if a child does moderately well on all six Structural Categories and does not show significantly better performance on one category than on any other. A more confusing pattern of results might be something like the following: the child does badly on "Local" items, but well on "Clause" items; he does better on "Subordinate Sentence" items than on "Conjoined Sentence" items, and he does well on both "Same" and "Separate Paragraph" items. We would be hard put to say what this sort of performance reveals about a child's reading--yet the teacher may get some test results that show exactly this kind of confusing pattern. In some cases like this, the test results might show a more revealing pattern if looked at in terms of the Parts of Speech Categories. There will probably be some cases left over, however, in which the pattern or errors seems random because the child's reading performance is being affected by one or more factors that this particular test is not sensitive to. Many such factors could influence the tests results, and it is difficult to anticipate and control for all of them. The test might be affected, for example, by the particular indisyncratic world knowledge the child happens to have, by his attitude toward test-taking, or by how he felt that day. The test results might also be affected by some particular strategies that the child uses in his reading, but that the categories of the present test do not reveal. One way to delve further into such problem cases with individual testing is discussed in Chapter V.

3.2.2. Possible patterns of test results: parts of speech. As for the Parts of Speech Categories, the test results will be clearest in these cases where a child misses more items in the "complex" categories than in the "simple" ones. For example, we will be able to draw some fairly clear conclusions about the reading of a child who does better on simple "Noun" items than on "Noun Head" items--and we will be able to recommend some instructional strategies for such a child. It will be harder to interpret the test results for children who do better on the "complex" categories. For example, compare two children who get the same total number of "Noun" items correct on a test. Suppose that one child gets 90% of simple "Noun" items correct, but only 60% of "Noun Head" items, while the other child gets 90% of the "Noun Head" items and only 60% of the simple "Noun" items. It is apparent that these two children are significantly different in their reading, in spite of the fact that they get the same overall score on all noun items. The former child shows a decrease in his performance on items that are more complex. This is an understandable sort of result: we can infer that this child experiences some difficulty in dealing with complex constructions where a noun serves as the head of a following clause or phrase. A teaching strategy that lets him have experience with such constructions might help. On the other hand, the latter child has done very well on these constructions, so his test results do not imply any particular instructional program, at least as far as complex noun constructions are concerned. His poorer performance on simple "Noun" items might be due to irrelevant outside factors.

Every teacher has probably had the experience of seeing a child read a word perfectly at one point in a text and later on miss that very same word. How can this happen? The child knows the word, so it cannot be a vocabulary problem. Recall, however, that one and the same noun can appear sometimes in a simple construction and sometimes in a complex construction as the head of a following clause or phrase. If some children have more difficulty with nouns in complex head constructions, then this might explain why a child will sometimes miss a word that he knows perfectly well: he may have such difficulty in processing a particular sentence containing the word that the word, in effect, becomes unfamiliar in that context.

The word rumor is a good example of this difficulty. It can act as a simple noun or it can act as the head of a construction in two different ways. In a sentence like the first one below, it is a simple noun, in the next, the content of the rumor is given in the construction that it heads, and in the third sentence, the word rumor heads a construction that provides information about it that is like what can be given as a prenominal adjective (cf. the untrue rumor):

No one should put stock in a rumor.
I believe the rumor that Harry cheated.
I believed the rumor that Harry reported.

A reader would have difficulty with a passage like the following if he treated rumor like he would in the first or second sentences above:

Maybe no one would believe the rumor that Gloria had started at school just like my brother asked her to. Maybe no one would believe I would do such a thing. It was my only hope. I couldn't expect Gloria or my brother to clear things up, to admit that the whole thing was a lie. They hated school, anything to do with education, in fact, and certainly wouldn't help me to stay in school. They had been trying to get me to drop out like they had, and it hadn't worked. Now it looks like they've found a way to get me kicked out.

Either way of misreading the passage (reading it like the first or second sentences above) could lead a reader to be confused about the characters called Gloria and brother. The first mention could be understood as meaning that Gloria was in school and the brother had urged her to start school, but later, the passage indicates that neither has any positive attitude about education, that both are drop-outs. Mis-

reading noun heads like rumor can have consequences for understanding whole passages.

We have dealt at length with possible patterns of data on simple "Noun" versus "Noun Head" items and the kinds of reading problems they are related to. The same kinds of things may be said concerning other Parts of Speech Categories. A child's performance on simple "Noun" items should be compared to his performance on "Verbal Noun" items. Poor performance on the latter will once again tell you something about the child's reading, and imply certain instructional strategies. Verbal nouns may be a problem in two different ways during regular (non-test, non-cloze) reading. First, some readers may recognize the root of the word as a verb, and they may have a problem reading the sentence as they try to construct the word as the verb of a separate clause. They misread the sentence in order to use the verbal noun as a verb. For example:

> Jim liked the rhythmic beating that John supplied in the background. That was music!

These sentences might be recast to treat beating as a verb in a misreading like the following:

> Jim liked the rhythm. Beat that John. Supplied in the background, that was music.

Second, if the verbal noun is not seen as a noun, a reader may look for other nouns in the sentence to act like a subject or an object or whatever grammatical role the verbal noun is playing. This again can cause some misreading. For example, suppose tricking is rejected as a noun subject in the following sentence:

> Tricking the music teacher was not approved of.

If a reader omits the verbal noun tricking and finds teacher to use as the subject of the sentence, then that reader will read a very different sentence:

> The music teacher was not approved of.

Verbal nouns are not infrequent, even in tests meant for beginners. If the test results show that a child gets more of the items in the "Verbal Noun" Category wrong than items in the simple "Noun" Category, then a particular problem that the child has in reading can be located. Our group cloze test will not show whether the problem is of the first type (trying to treat the word like a verb) or the second type (trying to locate an alternate subject); however, supplementary individual oral testing like that described in Chapter V will help identify the student's problem and allow the teacher to design appropriate instructional activities.

Scores on simple "Verb" items should be compared with those on "Participle" and "Complement-taking Verb" items. As before, poorer performance on more complex classes might indicate the appropriateness of instructional efforts dealing with those classes. For example, if a child does significantly better on simple "Verb" items than on "Complement-taking Verb" items, this might be evidence that the child is having some reading problems with some kinds of verb-complement constructions. We described some of the complement constructions above (see 3.1.3.3.2) when we discussed the Parts of Speech Categories. Again, depending on the child's age, he may also have problems with some verb-complement constructions in his oral language, and this may contribute to the corresponding problem in his reading. Problems with verbs that take complements can account for some misreadings that make the passage seem contradictory or nonsensical to the reader. The problem arises when a child encounters a passage like the following:

> Harry was the only one who had a perfect score on the math test. The principal doubted that Harry had taken the exam from Mr. Hendrick's office, but he had no alternative. Harry had to be called in and questioned by the school counsel.

The word doubted in the second sentence is a complement-taking verb. A misreading, treating doubted as though it did not take a full sentence complement, could produce two sentences like these:

> The principal doubted that. Harry had taken the exam from Mr. Hendrick's office, but he had no alternative.

It is clear that the original passage has a character named Harry who is presumed to be innocent by the principal and whom the principal is reluctant to question about the exam theft. The rest of the passage can take this for granted and build on it. However, the misread passage has a character named Harry about whom the principal has a quite different opinion--the principal doubted that Harry had a perfect score. Furthermore, in the misreading, Harry was a thief, although he was driven to it. Unfortunately, it is not only Harry who is in trouble, but also the child who misreads in this way. Further developments in the story will make little or no sense to him. Further insights into misreadings related to complement-taking verbs can be gained by reading sections 1.3.4.1 and 1.3.4.2, pps. 9 through 11. In the next chapter there are some suggestions for teaching children who have problems with the more complex Parts of Speech Categories.

3.3. RESULTS AND TEST FORMS

In our cloze test, each child read six passages (except for the youngest group, which read four). These passages were arranged in order of increasing difficulty as measured by standard readability formulas. For example, our Test Form 3 contained an easy and a hard sixth grade passage, an easy and a hard seventh-grade passage, and an easy and a hard eighth grade passage. Given this arrangement, you might expect performance to decrease on each successive passage on a Test Form. That is, you might expect most children to do best on the first passage in the Test Form they are given, and to do a little worse on each subsequent passage. When this happens, children can be said to have a certain reading level, and they can be assigned to reading groups or provided with textbooks that are said to be appropriate for that certain reading level. However, many children may not display this expected pattern of results across the six passages of a Test Form. There are several reasons why the expected results may not appear.

For one thing, although the general difficulty of the passages goes up from passage to passage on a Test Form, the cloze items themselves were not constructed with the idea of making the earlier passages easier. For example, suppose a particular child finds "Local" and "Clause" items easy and "Subordinate Sentence" items more difficult. There are not necessarily more "Local" and "Clause" items on the first passages. So this child will find some items that are easy for him, and some items that are difficult for him, on each passage of the Test Form. The effect of this will be to reduce the chances that the child will do best on the first and easiest passage and do consistently worse on each subsequent harder passage.

Other factors may also continue to prevent the expected pattern of results across a Test Form. Certain factors about the test-taking situation may cause a particular child to do better than expected on the later, harder passages. A child's anxiety about taking the test may decrease as he goes along, or his motivation may increase. Both of these would lead to improved performance. Temporary lapses in attention might reduce a child's score on any passage in a Test Form. Finally, there is one large factor which almost certainly influences a particular child's performance on a particular passage: for any child (or, for that matter, for any adult), understanding a passage probably always requires certain background knowledge. It helps the reader a lot if he already knows something about what the passage is talking about. It is impossible to keep this factor from affecting performance on the cloze test (or any other test of reading comprehension). To take an obvious example, if a passage is about a baseball game, the reader who already knows something about baseball will have an advantage in understanding the passage over someone who knows nothing about the sport. In other instances, the child's background may give him information that conflicts with the information in a pas-

sage, and he may choose answers that make the passage fit into his view of the world, that are logical from one cultural perspective but are scored as wrong for purposes of the test. So each child's performance in each particular passage may have a lot to do with what outside knowledge that child happens to have. Children's texts customarily take this into account, dealing with topics that children are likely to be interested in and to know something about. For example, at early levels there are many stories about the family, pets, and childhood games, and also stories about school, the park, or the zoo, and what children see and do in those places.

Any or all of these factors may lead to varying patterns of results across the six passages of a Test Form. For example, a child may do well on both initial and final passages, and badly on the middle passages. Or a child may do badly on the first two passages, well on the third and fifth, and badly on the fourth and sixth. Results like this should not be surprising or disturbing, considering the objectives of the test and the way it is designed. We have pointed out a number of factors, both about the testing situation and the test design, which might prevent the test form from giving a clear picture of a child's reading level. A teacher can work with the children whose test results show extremes in performance among the six passages in a form. Horvath (1976) and Meier (1971) describe a methodology that lets the teacher know what accounts for the answers a child has arrived at. The idea is to gather three or four children whose answers differed quite a bit on a given passage; give them the passage again and remind each of the answer that they chose for each item; then ask them to explain what led them to answer the way they did. In sessions like this, where children share with peers their reasoning, their test-taking attitudes and strategies, and their background knowledge, the teacher is usually the one who learns. Teachers learn that "right" answers are often arrived at for "wrong" reasons and that "wrong" answers are often more sensible for some children and are an index of good reading performance. In addition, teachers learn that some background information that they had assumed to be held in common by themselves and all the children is not, in fact, shared by this younger generation or this cultural group. This technique lets a teacher narrow down the reasons for what initially looks like inconsistent performance across the passages in a Test Form.

However, whether or not reading level information emerges from the test results, those results should still be useful in providing certain information about how the child deals with written language. The test is designed to be diagnostic of certain strengths and weaknesses that might carry over from his performance on easy passages to harder ones. So even if a child's test scores *across passages* on a Test Form do not seem to say anything about his reading, it is still possible to use the cloze test results to learn about his reading comprehension by looking at his performance on the various Structural Categories and Parts of Speech. A child's scores on these categories do not depend on his doing better on the easier passages at the beginning of a Test Form and worse on the harder final passages. A child's scores on the Structural Categories and Parts of Speech depend on his performance on all six passages of the Test Form, and the teacher should be able to use these scores to learn something about the child's reading comprehension. Our work with readability levels as defined by various formulas makes us place a lower value on getting a reading level to assign to a child in order to match his textbooks to that level. While we were constructing this test, we looked at many passages that the formulas said were of an equivalent difficulty or reading level but which we (and the teachers we worked with) found to vary greatly in reading level from a common sense viewpoint. Freeman (to appear) has gathered together many of the reasons why readability formulas fail to locate the important differences in text difficulty. We have also noticed, as has almost anyone who works with children, that under certain circumstances children read easily from texts that we and readability formulas would predict to be too hard for them. Motivation and the function of reading and the social situation are all factors in whether a piece of written material is too hard or too easy. Thus, we are not disappointed when "reading level" based on readability formulas cannot be determined from our test. We are more interested in determining what strengths and weaknesses a child has and in developing strategies like those in the next chapter to help him develop the ability to read whatever he encounters.

Chapter IV: Teaching Strategies Related to a Test

4.0. STRATEGIES AND READING

The modified cloze test that we built gives us certain information about some kinds of weaknesses and strengths a student has in reading. This information in turn provides the opportunity to plan a program of classroom activities designed to give help where help is needed. There is a fortuitous ambiguity about the phrase "teaching strategies." On the one hand, children need to learn the strategies of successful reading; on the other, teachers need strategies to promote this learning by students.

Teachers are typically beseiged by suggestions and calls for innovation, from parents, administrators, publishers, and the literature. There is continual pressure for change to this or that reading program, to adopt this or that approach or material. The cloze test results might, in some measure, provide a counterpressure by pointing out reasons to keep and emphasize certain practices. Teachers might find confirmation from the test results that many of the things they have already been doing with their students are appropriate and valuable; they might find an indication that certain activities should be done more frequently or more systematically, or done less, or emphasized with some students and not with others; they might even find a need for new activities to address specific problems. The purpose of this chapter is to make suggestions for instructional strategies which might be appropriate, given various kinds of results from the cloze tests. Many of the activities suggested here not only have consequences for instruction, but also offer the teacher a means of continued diagnosis of a given type of reading problem.

First, some remarks are in order about the ideas and suggestions presented here. They are just that--ideas and suggestions. All of them grow out of an interest in children and how they learn. All of them are based on what research in reading and linguistics leads us to believe about reading and language development and about the nature of the reading process--the same notions that went into the design of the cloze tests. However, there has been little research designed specifically to evaluate the effectiveness of particular instructional strategies. Each classroom teacher is in a special position to participate in filling this gap. Teaching ideas can only be accomplished when they are implemented as part of a planned program--over time--and that is how the ideas here are intended to be used.

The suggestions to be made here are based on a view of the reading process that derives from a growing body of research. (See the references to Goodman, 1967, 1970, and 1973; Smith, 1971 and 1973; and Wanat, 1977a and b, in the bibliography for more complete discussions of this research.) There is good reason to view proficient reading not just as a precise, sequential activity but as a process of selecting from among the various and redundant clues to meaning which the language of the text makes available. These are the strategies of successful reading. For example, consider the following passage:

> Terrified, Jason watched the trees flash by in a blur. The sled was hurtling out of control down the hill.

This small passage illustrates the redundancy in language which makes it possible for reading to be something other than a word-by-word process. The notion of redundancy here has to do with the fact that the same information is made available in different ways in a piece of discourse. In the passage above, for example, the notion of "hurtling" is made accessible to a reader not only through decoding the string of eight graphic symbols, h-u-r-t-l-i-n-g, but also through clues in the

morphological, syntactic, and semantic systems of the language. A reader making efficient use of available clues in the above passage will, by the time he encounters the word hurtling, be anticipating the notion of hurtling on the basis of various clues he has been picking up, several of which are: (a) the content of the previous sentence, (b) the fact that sled is the subject of the sentence and that the word occurs in a slot that can be filled by a verb participle, (c) the adverbial phrases in the sentence, and (d) the inflectional suffix -ing on the word hurtling.

With all this information guiding his expectations, one reader may need only to pick up the initial h of hurtling to recognize the word and go on; another reader may not even precisely identify the word hurtling but proceed with an accurate sense of the meaning intended. Readers will vary in how they select and use information made available by the language. Reading strategies vary in two ways: first, one reader may use different strategies on different passages; second, different readers may rely more on strategies from one part of the language system than another in getting clues to meaning. Models of the reading process from research vary also in the relative importance attached to the different linguistic systems for making meaning accessible to a reader. The important point is that redundancy in the language makes meaning accessible to a reader in more than one way. Consider for a moment the case of a reader whose only access to the meaning in a text is by decoding the print into oral language. In order to construct a meaningful unit--a word, a sentence, or a paragraph--the reader will have to retain a certain (frequently large) number of sounds, words, or sentences as they are decoded in sequence. But the built-in limitations on memory will frequently make it extremely difficult, if not impossible, for a reader to retain enough of the relevant units to construct a meaningful whole. Proficient readers with adequate comprehension rely on an efficient sampling of the different clue systems available in the language of the text.

This is not necessarily an explicitly taught, conscious process. Much of this knowledge of language--facts about its systems, meaning, form, structure, and use--which enables a reader to go through this process is internalized knowledge which the reader brings to the task of reading just by virtue of knowing how to speak the language. The redundancy of language plays a crucial role in comprehension of oral language as well. One major goal for instruction, then, is to get children to deal with printed language as "real" language, to apply to the task of reading the language knowledge that they use every day in speaking. (See the reference to Griffin, 1977, in the bibliography for a discussion of this issue.) Instructional strategies intended to further reading comprehension should increase the reader's ability to pick out and efficiently use contextual information as it is built into written language and his ability to deal with grammatical structure, particularly the complex structures that are more typical of written language than of conversation.

We will offer here some suggestions and ideas which can and should be adapted according to the nature of students' problems, the number of students involved in an activity (an individual, small group, or whole class), and such factors as the age, maturity, and interests of the students. The first six suggestions are things which should generally encourage the use of contextual information, particularly the type of information which is spread across the separate paragraphs of a passage but which is crucial in tying them together into a meaningful unit. Children who did poorly on the Structural Categories labeled "Separate Paragraph," "Same Paragraph," and "Adjacent Sentence" on our cloze test can profit from instruction based on these six suggestions. The seventh and eighth suggestions are aimed primarily at the use of context clues located in subordinate and coordinate sentence constructions, and children who did poorly on our test on items from the Structural Categories labeled "Subordinate Sentence" and "Conjoined Sentence" are candidates for instruction based on these suggestions. The ninth suggestion deals with the use of contextual information within the bounds of one sentence or clause and is useful for children who did poorly on the Structural Categories labeled "Clause," "Local," and "Same Sentence." The first three suggestions can, over time, further children's ability to deal with complex grammatical structure and are thus good to use with children who had trouble with the more complex Parts of Speech Categories. Suggestions nine and ten focus specifically on noun head constructions and complement-taking verbs, and children who can profit from this work will be identified by low scores on these Parts of Speech Categories. For beginning readers who scored low

on the Structural Category labeled "More than Two Repetitions," we suggest no instructional activities, but rather recommend that the teacher screen the reading materials presented to the student in order to allow him to have successful reading experiences with books that do not use repetitions that make the language of the book seem unlike everyday language. A complete discussion of the Structural Categories and the Parts of Speech Categories can be found in Chapter II. If you participate in the construction of a cloze test with different categories, some of these suggestions may still be useful, but you may have to supplement them with other suggestions.

One initial point may seem so obvious as not to be worth making. This is that children should not be taught what they already know or what they seem to be doing well already. However, some programs of reading instruction can lead to just this, either by teaching children facts about language use which they already know from every day speech, or by emphasizing reading "skills" (e.g. recognizing letter-sound correspondences) beyond the point when students have mastered them or to the point when they might impede, rather than facilitate, reading proficiency. (See the reference to Shuy, 1976, in the bibliography for a discussion of what he calls "aphasic teaching.") The cloze test results, by indicating some areas of strength and weakness in the individual student's reading, make it easier to avoid this error.

A final word about the suggestions: each can be thought about, and implemented, on two levels--the level of doing a thing and the level of talking about doing that thing. That is, for each of the activities you engage children in, consider talking about why you are doing it and what it has to do with reading. This might make particularly good sense with older children. Bring them around to realizing that the kinds of things that can be done when they listen to someone read aloud (as in 4.1) can be done when they read to themselves as well. Or the kinds of thinking they do when they read a mystery story (as in 4.6) can be done appropriately when they read a science text, too--and so on. Meta-cognitive and meta-linguistic awareness can be fostered by this kind of second-level activity. (See the references to Gleitman, 1976, and Chall, 1976, in the bibliography for a discussion of the importance of this kind of awareness to reading.) Children can become aware of the alternate strategies available to them as readers, and this may motivate them to participate more fully in lessons. When they see the rationale behind instructional strategies, and the variety of applications related to them, the children become "meta-readers." These children are able to share the results of their thinking and the outcome of their attempts to use various reading strategies with their teacher, and this sharing may, in turn, increase or refine the teacher's repertoire of instructional strategies.

4.1. READING ALOUD

Do plenty of reading aloud to students. Of course, teachers and parents have always read aloud to children, but our suggestion is to make it an important part of an overall program, recognize it as reading instruction, and make the most of it as such. In many classrooms, reading aloud is already a part of the regular school day, for purposes other than reading instruction--to prepare children for rest time, to calm children down at certain times, etc. It is fine for these purposes, but it is a good thing to do for its own sake, too. There are several reasons for this.

First, if interesting materials are read aloud in an entertaining manner, the experience will encourage an awareness that reading is "real" language, to be dealt with, at least partly, like language in every day speech. Reading aloud should be done often and on a regular basis, the material read being something which both teacher and students will enjoy. The reading can be done by the teacher or by another person from the school or community, but it should be a well-prepared presentation. Second, this story time presents a great opportunity for work with context clues to meaning, particularly those which reach across the separate paragraphs of a discourse. (For that reason, this suggestion is particularly relevant where test results indicate that students are not using "Separate Paragraph" clues successfully.)

In order to foster the use of these long-distance clues, the reader should pause

at natural stopping places--a picture or the turn of a page--and allow the spontaneous comments that children engrossed in a story typically make at these points. For example, in one class we observed, a teacher reading aloud came to a question asked in the story: "Why do you carry a light, Mr. Lightning Bug?" She paused to show an illustration (which, incidentally, was irrelevant to the question). The children, knowing that questions call for answers, seized the opportunity of the pause to volunteer various answers, most of which became focused on the fact of a light being permanently attached to the bug's body--carrying it was not a matter of choice for the bug. This fact was important for understanding subsequent parts of the story. The teacher pausing allegedly to show the picture stimulated the children to practice predictive comprehension skills that could be transferred to their own silent and oral reading. Pictures accompanying stories serve several important functions when stories are read aloud: they allow the adult reader to look up and have eye contact with and interact with the children, and they provide a silence which is available for helping to understand the rest of the story. They give the children a turn to interact with the text--a critical aspect of reading. In fact, one of the major differences in dealing with spoken language, which the children are quite good at handling, and written language, which the children are developing strategies to handle, is the system of interaction between the producer of the language and the receiver. In situations where spoken language is used, the receiver (the listener) can use language and body movements and para-language (grunts and groans) to help inform the producer (the speaker) as to whether or not he understands, as to whether something can be skipped, as to whether something needs further explanation, as to whether he needs to be reminded of something that was said earlier or that the speaker takes for granted that he knows, etc. By the time children begin to deal with written language, they are pretty good at dealing with all these aspects of spoken language, but they need to develop a sense of how to interact efficiently with the producer of a written text. Teachers reading aloud and pausing can give them experience with when to bring their own knowledge and questions to the text and how to do this. Some children need to learn the very basic fact that the reader is expected to interact with written language, not to be just a passive vessel for the author's words and sentences to fill up. This may seem most obviously true when we consider the more advanced skills of interpretation, appreciation, and criticism of written language, but it is also true that beginning readers need to interact with the text in order to use their background knowledge and predictive skills even in so basic a skill as decoding.

During pauses in oral reading, encourage comments and even wild guesses about what is going on in the story, and get children to discuss why they think such and such, guiding attention to the clues the story is providing about what is going to happen. Resist the temptation to cut off comments in order to finish up the story. We once observed the following situation in a first grade classroom: the class was caught up in listening to a fairy tale being read aloud by their teacher. At this particular juncture in the story, the evil innkeeper had entered a room where the protagonist lay waiting with a magic stick. The protagonist had given the prescribed instructions to the stick, "Hit, stick, hit!" There was a burst of comment from the children, "Hit who?" "Hit the innkeeper." "Yeah, hit the innkeeper!" Although the correctness of this guess was perfectly clear to everyone, the teacher, trying to move things along, replied, "I don't know," and continued reading. Alternative replies which would have made the most of the opportunity might have been, "What makes you think that" or "How many of you think that" or "I think that, too. Here's why I think that..." and, if time was running out, a plan could have been made to finish the story later.

Structuring the situation so that the story can be finished at a later time, even the next day, offers some distinct advantages. (This is a case where significant academic content can be worked into a classroom management device.) We have seen children in this type of situation (when story-time is resumed) do many things which demonstrate comprehension--summarizing, talking about implications of the story, etc.--in order to get around to finishing the story. "Finishing later" gives the children an opportunity to get involved in thinking about the story that they would not have otherwise, and gives the teacher an opportunity for informal

comprehension assessment.

When reading aloud to children, ask comprehension questions, not just as a review at the end of the story, but at points when the answers can be inferred from clues in the story even though they are not yet explicitly stated. Pay close attention to the answers, even if they are wrong. If you can see why a child gave a particular wrong answer, you can sometimes see what clues he is missing--what strategies for reading he is not applying.

In addition to making the language real and encouraging interaction with context clues, there is a third motivation for reading aloud as an instructional strategy. It comes from research in children's language acquisition (see the work by Carol Chomsky, 1969 and 1972, referenced in the bibliography). There is evidence that the language development of young children is positively related to the quantity and complexity of reading they have been exposed to. We know that while different children develop language skills at different rates, there is a regular sequence in which certain grammatical constructions are acquired by all children. This development continues into the early years of school, and seems to be helped along by exposure to the grammatical complexity of written language, whether the child tackles that language himself or hears it read aloud. Reading exposure and language development, then, have a reciprocal sort of relationship. A child's reading may be hindered if he does not control a particular structure yet, but if he is on the verge of acquiring that structure, encountering it in reading can speed up the process of acquisition. Furthermore, earlier acquisition of the structure will benefit his reading. So do not avoid reading stories to children just because the syntax might be difficult for them. As long as the meaning gets through in other ways, such stories should be of benefit both to the children's reading and to their oral language development.

During some reading aloud sessions, children comment spontaneously on certain aspects of the form of the language of the written text. Once again, pauses provided by the teacher allow space for the children to talk about what is being read. Here, however, the talk is on the "meta" level--talk about the language form and the structure of the text. We have observed children talking about letter-sound correspondences, about word families, about rhymes, about synonyms and antonyms. They have revealed to their alert teachers that unexpected words are in their sight vocabulary and that other words are *key* words for them in decoding. They have added new words from what they heard to their spoken vocabulary. We have seen such discussions occur not only when the written material was a children's book or a fairy tale, but also when the teacher was reading aloud from a pamphlet for adult tourists that described the place the children would be going on their next field trip or a letter to parents about an upcoming school event. Everything we have noticed children offering meta-comments about has been on a word level; we have not collected any comments about sentence or paragraph structure or rhetoric. This may be because we have seen so little reading aloud being done with children who are in grades higher than grade two. We are interested in finding out whether such discussions will be brought up by older children and if they will focus on language forms beyond the word level. What a teacher has to remember is to provide the opportunity for these discussions by reading aloud and by pausing at reasonable places, and further to recognize the beginnings of these discussions and participate in them so as to keep them going productively, rather than cutting them off.

4.2. READING WHILE LISTENING

Make tape recordings of stories read aloud from books in the classroom and let the children listen to them individually, looking at the text as they follow along. Choose stories which will be fun to read and which are at or slightly above the reading levels of the children for whom they are intended. When making the tapes, read at a speed that approximates the rate of the children's fluent reading, leaving time for looking at pictures and turning pages. Use short cassette tapes, recording one story on a side. Make the tapes, and the books containing the stories, available at a listening post, and show the children how to listen to the story being read aloud as they follow along in the book. Use pictures or color-codes or symbols

to identify the book and cassette that belong together so that children who see themselves as non-readers can be independent in starting and resuming their work.

This activity, which is another variation on an old idea, serves several purposes. One way for children to learn reading might resemble the way they learn oral language--by exposure, picking out the elements they can handle as they gradually build and internalize the system. When children learn to read, they already have the language system, but they have to learn to pick out cues to meaning from the graphic presentation of the language. Furthermore, using all the contextual information built into a written passage, for purposes of making sense of the passage, requires the active participation of the reader. Hearing a story read aloud, while looking at the print, makes the system of cues in the text accessible to a child. Oral reading includes intonation as a supplemental source of available information about meaning. Consider, for example, sentences that start with a WH-word but which are "exclamations" rather than WH-questions, such as:

What strange ideas you have!

Children, more familiar with the WH-question form than with this type of exclamation, might legitimately be led to anticipate a question by the what at the beginning of the sentence, but the sentence syntax in this case does not bear out this expectation. A child apt to be thrown into confusion by such a problem would be helped along by the intonation of an oral reading.

This activity can prove to be useful not only for the beginning reader, but also for the child who is anxious and threatened by reading situations, as well as the child who is just turned off to reading. Free from the perceived pressure to get the words right and not to make mistakes, the child can relax and pay attention (whether he realizes it or not) to getting meaning in context. People who have tried this activity in classrooms, and reported on it, have used it successfully in several different ways. How you structure the activity depends on your purpose.

In one reported situation (Hoskisson and Krohm, 1974), the main purpose of the activity was to provide certain children with an anxiety-free opportunity to deal successfully with printed text. Given this purpose, there should be no comprehension questions on the taped stories, nor any attempt to incorporate skills teaching. This type of reading experience appeared to increase students' confidence in reading and their awareness of just what they could and could not handle in reading, leading them to make more willing and more realistic choices of books for themselves.

In another situation (Chomsky, 1972), children were instructed at the outset to listen to the tape, following along in the book, as often as they wanted to, until they were ready to read the story aloud for themselves. After repeated listening to the assigned story, these children were able to "read" it aloud--a reading which, initially, amounted more to memorization than to actual reading--and then participate in a planned discussion of the story. As this program progressed, children's confidence about reading increased, and it appeared that some transfer of real reading ability was taking place, from this "memorized" reading to other reading.

It is clear that the two uses of this instructional strategy just described are quite different in the way they are handled, but both have been shown to serve a valid purpose with some success. Any particular classroom teacher might find that one, or the other, or a mixture of both, best serves the needs and tendencies of his or her own students, and the activity should be adapted accordingly. One adaptation is to combine some aspects of this activity with the one suggested in 4.1 above. A story can be started as an oral reading to the whole class, and the children can have an option of finishing it by this reading and listening technique or by reading alone. The cassette that provides the conclusion to the story can begin with summaries of main points and/or with questions that suggest what remains to be revealed in the plot. These kinds of questions are familiar as the stereotype (or parody) of questions used at the end of soap opera serials; for example, "How will Mary tell John that she can't marry him? Will true love conquer all?" More recently, these kinds of questions were used on the children's television show, The Electric Company.

Another approach to encourage children to interact with the text material depends

on technology. What is needed is a tape recorder that can be used for recording by children but which has a mechanical safeguard against taping over or erasing segments that have been previously recorded. If such a recorder is available, the teacher can record, with the non-erasable safeguard, a story and include pauses where a child can record responses that can later be erased so another child can use it. The children can be encouraged to fill the pauses with comments about what they predict is going to happen or questions about the language of the text or evaluations of the story. A teacher reviewing these responses has an index of a child's progress and/or the basis for a follow-up discussion with a child. Suggestions that follow, particularly 4.5, can be combined with this basic listening and reading technique.

4.3. VARIETY IN READING MATERIAL

For children who are reasonably confident about reading and who like to pick out books for their own reading, do away with any idea that they should be guided to read "on their level." This suggestion is based on the fact--discussed in connection with 4.1 above--that children's general linguistic development seems to be helped along by a lot of exposure (either by hearing or reading) to complex written language, including linguistic structure which they do not quite control yet in their own speech. Previously, we suggested doing a lot of reading aloud to all children. But for those children who do wish to read on their own, do not discourage them from reading well beyond their own reading level, letting them just get whatever they can out of what they read. In this kind of reading, which should be for enjoyment rather than to gain specific information, encourage them to skim over uninteresting or hard parts, going on to the "good" parts. This type of reading, free from the restrictions of concentrating on controlled texts, can provide the child with rich exposure to the complexities of language and allow him to make an efficient selection from among the available cues in the language to follow the meaning. This latter activity will be furthered by the fact that the domain of background knowledge required for a story will be controlled by the child, since each child is likely to choose books in areas that are somewhat familiar to him already.

It is important for real choices to be available in the classroom. In addition to books that are part of the reading program, textbooks from other subject areas should be available. Other choices should include a range of trade books, magazines, and newspapers. Teachers who are provided with reading textbooks that have language that seems unlike ordinary, every day language have a particular need to seek materials to supplement their program. Reading material can be found in such strange places as in boxes containing games or tools or kits for building model ships or for building bookcases. Recipes might be the choice of some children; a travelogue from the Chamber of Commerce in New Orleans might excite some others; political literature could interest others. Job applications and the literature provided to explain insurance or savings plans also should not be overlooked.

Finding ways to get a full range of reading materials available so that they can be used in classrooms could be a good school project. Students and teachers might want to form a reader's cooperative to share materials the members collect. It might be necessary for students to read school district procedures and rules and regulations to find out what kinds of materials can be supplied by the school system and how to get materials financed. If young children get interested in making and running their own library and resource centers, they will probably be more interested than ever in working with such facilities planned by adults for them.

4.4. PREPARATION FOR READING

Expand the notion of preparation for a reading assignment. A common practice is to present briefly some material at the beginning of class, or at the end of the previous class, but this practice may not be sufficient. Reading texts require a surprisingly large amount of real-world knowledge in order to make sense--a requirement which we sometimes do not recognize because the knowledge seems so obvious. Virtu-

ually any example would serve to make the point, but consider the following (the first five lines of a story in a widely-used first grade reader):

Ken: Walking little dogs is fun.
And it's not much work.
Ted: But we don't get much for doing it.
How can we get to Fun Park this way?
After this I want to walk big dogs.

Quite a bit of information is assumed by this story: dogs must walk outdoors for certain purposes, and they are frequently taken for such walks under the control of a person; walking a dog can be done by a boy for the dog's owner in exchange for some money; the money earned by walking a small dog is less than that to be earned by walking a big dog; money can be saved up for some long range plan; there is such a thing as an amusement park (one of which could be named Fun Park), which charges an entrance fee, and that entrance fee is considerably larger than the amount of money which can be earned over a reasonable period of time by walking small dogs; and so on. The point applies to beginning texts and to higher-level ones as well. If a reader lacks all or part of the information needed to understand a story, he will not be able to deal with it. The problem is complicated by the fact that stories frequently require the reader to abandon things that he knows about the real world and accept a different set of facts as true in the world of the story, for purposes of reading it. Learning when and how to do this is another part of learning to read. Analyze each reading passage to be assigned to discover what knowledge it assumes on the part of a reader. Take time to do a thorough preparation with students--to give them the information they will need to understand the assignment.

It is important to remember that differences in background experiences among the children and/or between the teacher and the children can make preparation for reading an even more complicated task. There may be aspects of a story which are so commonplace to members of one sub-culture (including the author of the story and the teacher) that they are very difficult to notice. It may be hard to imagine that everyone does not know that, for example, a fire in a fireplace is not generally a problem of safety like a fire in a sofa is. However, we have observed some children who felt that the fire in the fireplace described as an unimportant detail in the setting for a story was a clue that the story was going to be about a house burning down. Of course, teachers becoming familiar with the real world that the children experience out of school is desirable for purposes beyond those of reading instruction. Having children help prepare others for a reading assignment is one technique that can help overcome some of the differences. Another approach is to take materials that are based on the background experiences of the children--songs, folk tales, poems--and discover the assumptions they contain. The contrast with classroom materials may help to make some of the too commonplace (to the teacher) assumptions of the classroom materials more visible. A good key to these kinds of contrasts is in the response of children reading a text. For example, a child unfamiliar with the jargon of American sports fans may not know that the following phrase is an indication of praise for a job well done:

That's the boy!

The reading of such sentences without knowledge of the jargon is often accompanied by indications of confusion. Teachers can be alert for such indications and can encourage children to bring to their attention any reading material that seems silly or wrong to them. If children can expect the teacher to respect their assessment of something as silly or wrong, they can then learn that from an alternate background it is not silly and that a successful reader can adjust to alternate background assumptions.

All of the kinds of information listed above--which are needed as part of understanding just a few lines of a story--can, of course, be discussed in the course of reading the story, rather than allowed to remain implicit. But more than that, it

might be good to give children the opportunity to step back, so to speak, and look at themselves as readers--to notice and talk about all the different kinds of knowledge and figuring out what their reading entails. The teacher can participate in this "meta-level" activity by working with the children on a text for which they have more background preparation than the teacher does. This is particularly appropriate to multi-cultural classrooms. It could well be observed that given how long it takes to talk about all the things you need to know and figure out in just one story, it is no surprise that reading something sometimes takes us a long time, that re-reading sometimes helps us understand a text, and that different readers can have different understandings of the same text.

4.5. ADVANCED LANGUAGE EXPERIENCE APPROACH

The language experience approach, generally discussed as an activity for beginning readers, might suggest some good activities for middle-level readers too, especially those who seem to have a gap between the way they deal with language in every day speech and language when they encounter it in reading. Consider some work in the tradition of the Foxfire books (see reference to Wigginton, 1972-74, in the bibliography). Have students meet members of their community and then tape record interviews with them on specified topics. Have the interviews transcribed and typescripted without editing the language. In time, some of the students might be able to do this. Then use these typed transcripts as reading material. Working for a semester or a year on this kind of project accumulates a wide range of materials for the class to use, and for subsequent classes to use. Some people object to the language experience approach, particularly for older students, because they think that students will be limited to reading material in only the narrative genre and further limited by reading only self-produced materials. In fact, however, a glance at the Foxfire books will show you that the genre is *not* limited to narratives: there are how-to essays, descriptions, and philosophical inquiries, as well as narratives ranging from history to fantasy. Furthermore, our past experiences with this approach have yielded plays and poems as well. Students we have worked with enjoyed having the tape recorders and turned them on during peer-group discussions, including some spontaneous role-playing intended to solve group problems. Haveing students share their material with each other, and, in a reader cooperative as described in 4.3 above, with other classes or even schools, eliminates the problem of restricting children to self-generated materials.

This activity might do more than just provide written material that the children can easily see to be related to oral language. First, children will be familiar with the background information this material depends on, meaning they will be able to practice using such information in dealing with the text. Students can practice getting clues for comprehension from the written text without the distraction of dealing with language forms that are from a regional or social class dialect that is unfamiliar to them and without the difficulties of determining and understanding sub-cultural assumptions of the author that are not the same as those in their own experience. The situation is the mirror-image of the one discussed in 4.4--here the preparation for reading is unnecessary, the student's life experience *is* the preparation. A second way in which this approach can be helpful to students is on a meta-level. Ideas and experiences that were presented in oral language are being transformed into written language. This brings up philosophical and social questions as well as questions about the form and mechanics of written language. On the one hand, whole groups of students can see and discuss with their teacher issues that are related to the culture of literacy and begin to see themselves as members of a literate culture rather than as people excluded from it because they do not contribute to it and their lives are only represented in it by outsiders. (See Friere, 1970, and Elassar and John-Steiner, 1977, in the bibliography for a fuller discussion of these issues.) Students can discuss how the ideas and experiences that they are transforming into written language are similar to and different from what they have encountered in written language; how those ideas and experiences were retained and shared without being written; how being written down affects the size and make-up of the group among which the ideas and experiences are shared. As to the form

and mechanics of the written language, on the other hand, individual students who are transcribing from the tape recordings will find themselves making decisions about how to indicate in writing some important features of the oral renditions. How does written text express certain aspects of meaning that are expressed in oral language by tone of voice or by well-placed pauses or particular intonations? How does a transcriber decide where to put a period, a comma, a capital letter? Decisions made in answer to these questions can be recorded and discussed with the group. A writing handbook or a style manual could eventually be produced and would be useful for many purposes. Students might want to consider augmenting or rewriting some of the original texts in order to render them more accurately or more forcefully as written texts. They can compare their mechanical and re-writing decisions with those used by professional authors. What are the vocabulary choices, the modifiers, the sentence structures that can be found in published work that are similar in topic and genre to the text the student is working on? Students doing this kind of comparison become aware of important elements of the text that help a reader to comprehend the author's intent. The whole process might provide an occasion to talk about written text and to consider how written text expresses certain aspects of meaning that are expressed in conversations by tone of voice or well-placed pauses or particular intonations.

4.6. CONTEXT AND CLUES IN PICTURES AND MYSTERIES

Use materials specifically suited to help students get the idea of using information in the context to make sense of what they are reading, and help them practice doing this. One idea would be to use comic books or other materials rich in illustration or diagrams. In these, a lot of the information that is needed to make sense of the printed text is made accessible by the illustrations, which present it systematically in non-verbal form.

We do not mean to refer to a rebus here. In a rebus, a picture is used in place of a word in the text; for example, a drawing of an eye is used to represent the pronoun I. What is needed here is complete written texts that are supplemented by illustrations. It is not difficult to locate material like this; in fact, there is such material available for a variety of interests. Hardware stores and automotive parts stores have many do-it-yourself books that fill the bill. Many cookbooks, particularly those for cuisines from different countries, also contain many diagrams. Training manuals from factories and from the Armed Services are well-illustrated. An interesting way to demonstrate to students that good reading depends on both the written text and the context is the following: provide the materials and instructions for something that can be built or assembled in a short period of time. Provide one student or one group of students with the necessary materials and the instructions, but *only* the diagrams or illustrations, no written text. Provide another student or another group of students with the materials and the instructions, but *only* the written text. A third student or group gets the materials and the complete instructions, both written text and illustrations. Have the three students or three groups work independently on the project. There is little doubt that discussion will follow, in some cases focusing on the varying speed of completion of the project, in other cases on the quality or even the possibility of completing the project. Students can prove to themselves how closely text and context work together.

Another interesting project to help students develop an awareness of the importance of context in understanding written text is based on one-panel cartoons. Collect several cartoons that have a caption that is the quotation of what one person in the picture is saying. Have students work in pairs, perhaps with a tape recorder. One student has the cartoon and has to describe it to the other student so that the humor can be understood. The caption alone--the only written text--has to be supplemented with other language in order to be understood by the student who does not have the picture. The tape recording can be used as a base for rendering the joke into a totally verbal mode and written down. One source of this kind of written language, in a highly stylized form, is the cartoon quip feature found in the *Readers Digest*, where cartoons are described without the picture. The exer-

cise can help students notice that the understanding of one line of text depends to quite a degree on understanding the rest of the text, which helps to form the context for that line. An interesting side benefit to this exercise is the opportunity for the teacher to see differences in interpretation of the cartoons that may be related to differences in background experiences and that may be the sources of students' misunderstanding or being confused by longer written texts. (For an interesting discussion of language and cartoons, and an example of an alternate understanding of a cartoon, see the work reported by Twer, 1972, as referenced in the bibliography.)

Some kinds of written text that do not include illustrations or diagrams at all, but that do emphasize the importance of using information in context, are mystery and detective stories. As anyone addicted to them can tell you, reading a lot of them eventually trains the reader to make conscious use of the information built into the text. [For example, *Encyclopedia Brown* (see reference to Sobol, 1963-1976, in the bibliography), or the many popular novels and short stories for adults; movies can also be used.] These stories require the reader to pay attention to clues in the context in order to predict the solution in a kind of special case of what any reading involves. Readers learn to spot red herrings in mystery stories and to notice the stylistic clues of a particular author in order to crack the case before the heroine or hero does. When everyone else in the story believes that the case is solved, the hero (and the alert reader) remembers the one fact, revealed four or five chapters ago, that shows that the proposed solution is not possible in the context. Of course, that same fact indicates who the real guilty party is. Some mystery stories are constructed so that the class can be given everything but the solution. There are ones where the mastermind gathers all of the characters in the drawing room, or some equivalent place, and in the last four or five pages of the book shows how all of the information revealed, added to some background knowledge about the world, has developed into a context that allows the mastermind to say, "The butler did it." Give the students the whole mystery except for this drawing room denouement. Ask them to show how they would solve the case and to explain why they think they are right. The explanations will often consist of displaying connections between widely separated pieces of the written text and integrating information from the text with background knowledge that the reader must supply. Students can learn from each other and from the teacher how to locate the information and how to make the connecting links. It might be the case that the solution offered by the class and the explanation supporting it is preferable to the author's. Some detective fiction is not well-written and has internal inconsistencies, and when a class rejects the solution presented, they have the basis for a good criticism of the book. With this strategy, a side benefit is the opportunity for students to develop an appreciation of good writing.

Another exercise to develop attention to integrating contextual information can be built from court transcripts. In a trial, information from various sources is presented. Each piece of information is a potential part of the context. Usually, some information must be inferred and is justified as being true on the basis of how well it connects other overtly-presented and uncontroversial pieces of information. Summary statements by lawyers can be seen as competing proposals for the connections of the information into complete contexts: one proposal provides the context for a guilty verdict; the other provides the context for a non-guilty verdict. Reading court transcripts is not difficult, except for sections on points of law and technical legal language. Usually, the question and answer sequences involving witnesses and a large segment of the summation to the jury are in every day, easy to understand, language. The teacher can edit the transcripts to minimize the lawyer talk. Students can take the roles of opposing lawyers and show how the information can be connected to provide a context for saying that the defendant is guilty or innocent. Comparing the students' summations with the lawyers' summations in the in the original transcripts will provide further attention to the alternate ways that pieces of information can be connected to form discourse.

It should be clear from the above suggestions that either the illustration or the mystery technique can be the keystone for a full-semester or a full-year program. It is important to remember that work must be done to encourage students to

recognize the generalizability of context clue work to texts that are not illustrated and that are not mysteries. The conclusions of a report of a scientific experiment, the theme statement (often the opening one) of a personal opinion essay can be shown to be other examples of the importance of context to reading. Conclusions and themes are statements that are justifiable, understandable--meaningful, in fact--on the basis of the context built from the information the writer provides, the background information the reader provides, and the connecting links partly provided by the writer and partly inferred by the reader. Further work can show the role that the developing context plays in any written text statement and the need for a reader to develop a sense for using all the resources at his disposal to build the context as an active participant in the process of reading.

4.7. CONTEXT CLUES

A student's cloze test results show how well he handles clues to meaning when those clues are located in particular syntactic structures; for example, in subordinate and coordinate sentence constructions. Instructional materials can be designed to deal with problems some students might have with using clues located in these kinds of structures.

Suppose the test indicates that a student is having trouble dealing with subordinate sentence constructions. Make up a few single-clause sentences, each containing one nonsense word which could mean a variety of things--the single-clause sentences should not constrain the meaning of the word in any special way. For example:

James enjoyed watching the flink.

Talk about what flink might mean. Obviously, there is no way to know for sure from this sentence alone. Then present the same clause as part of a subordinate sentence construction which gives a clue to the meaning. In some examples, let the clause containing the nonsense word be the main clause and make the subordinate clause give a clue to the word's meaning. In other examples, reverse the relation, i.e. let the clause with the nonsense word be subordinate to a main clause which clarifies the meaning. Some examples are:

Even though his team was losing, James enjoyed watching the flink.
James enjoyed watching the flink which was buzzing slowly around the hot, quiet classroom.
James threw several heavy rocks into the deep part of the stream, because he enjoyed watching the flink.

In each of these sentences, let the students guess what flink might mean (some variety of answers will still be possible) and talk about what word(s) in the sentence help them decide about the meaning. For a variation, start with one of your examples as a frame and have students make up similar examples using one from above. For example:

Even though _____, James enjoyed watching the flink.

Since this can be a fairly difficult task, the teacher can set it up by doing a couple of examples using the same frame. For example:

Even though the TV wasn't working very well, James enjoyed watching the flink.
Even though he had to sit in the back row of the theater, James enjoyed watching the flink.

Then students can try to think of further examples, creating different contexts to delimit the meaning of the nonsense word.

Instead of nonsense words, examples can be found or constructed containing new,

hard words which students can figure out in context. For example, consider the following passage from *The Animal Family*, by Randall Jarrell (New York: Pantheon Books, 1965):

> But [when the logs had burnt to embers and the embers had burnt away to coals,] the man would lie in his bed, warm under the bearskin, and listen to the great soft sound the waves made over and over.

Many children who can draw on familiar notions of burning logs and coals will not know what embers are, but given the context of the conjoined subordinate clauses (enclosed in brackets above) within this sentence, plus some guidance in discussion, the meaning of embers can be derived.

This same kind of exercise can be used when students need to work with conjoined sentence constructions, as in:

James enjoyed watching the flink, but his parents thought he watched it too much.
We went to the airport this morning and James enjoyed watching the flink.

This kind of exercise can also be used to work on clues across sentence boundaries; for example, in each of the following contexts, in which the meaning of flurb is inferenced based on the content of the adjacent sentence.

Lucy was flurbing under a tree. She opened her eyes and asked what time it was.
Lucy was flurbing under a tree. She said the food was good, but there were too many ants.
Lucy was flurbing in the lake. She screamed for help.
Lucy was flurbing in the lake. She told Ted to come on in.
Lucy was flurbing her friends. Finally they all got mad and left.
Lucy was flurbing her friends about her new bicycle. They were all jealous.

Several reading programs include exercises somewhat like these where the meaning of one word can be derived from the words around it and the structure in which it is embedded. Most of the exercises which we have seen, however, are different in two respects from the work suggested here. First, very often the words chosen to be figured out are limited to specific classes of words; for example, homonyms (like bank in the bank of a river or in the bank where John got his loan) or homophones (like read and red) or words which can occur as different parts of speech (like cradle in the wooden cradle or in I like to cradle you in my arms). Here we are suggesting that the technique can be used with words that do not have these special characteristics. Second, the reading book exercises are not arranged in any particular way. Neither the type of word being focused on, nor the structure that supplies the clue for understanding the word, are controlled in the exercises. Students would find it difficult to understand the principle behind a reading book exercise because each item illustrates a different principle. Here we suggest using an organization according to where the clue to meaning is located. In one set of exercises, concentrate on clues from subordinate clauses; in others, get the clues from related main clauses; in another, get the clues from coordinate clauses; in another, get the clues from adjacent sentences. This gives the student a chance to assimilate each strategy separately and apply it to his regular reading. Later, the students can be led to see that the strategies are based on related principles. If a teacher is working with a reading program that has "context clue" exercises, it is a good idea to rearrange the items and supplement them with other examples so that the exercises are organized enough to let the students understand the principles and generalize the strategies for use in their everyday reading tasks.

4.8. WRITING AND COMPLEX STRUCTURES

For students who have trouble dealing with complex grammatical constructions (e.g. coordinate and subordinate sentence constructions) or with nouns and verbs when they participate in certain constructions (e.g. a noun as the head for a relative clause or verbs and their complement sentences), specific practice in writing these complex constructions might have a carry-over benefit to reading.

Expecting that skill in writing will further skill in reading is not to equate the skills involved. (See Read, 1977, referenced in the bibliography, for a further discussion of the relation between reading and writing.) But practice in combining sentences may lead a student to realize how the various ways sentences can be joined, or left unjoined, affect meaning. Consider, for example, a pair of sentences like the following:

> Tom looked down the street. Several children were playing among the parked cars.

The second of these two sentences can be taken to describe part of the scene that met Tom's eyes when he looked down the street. Suppose these two sentences were combined, as in the following:

> Tom looked down the street and he saw several children playing among the parked cars.
>
> Tom looked down the street where he saw several children playing among the parked cars.

It turns out that conjoining and subordinating sentences subtly changes the way we understand them. Here, the use of an explicit verb <u>see</u> would make the sentences focus on the act of seeing, marking what Tom saw as the matter of primary concern, rather than treating the content of the second sentence as a description of a background scene. While the task of choosing language for the expression of meaning is somewhat different from that of getting meaning from another author's language, it may well be that working on being a writer can increase a child's awareness of the subtleties of language in a way that affects how he deals with complex structure as a reader.

One source for this type of practice (for older students) is Strong (1973). This book is filled with short, relatively interesting passages composed of single sentences which invite combination in various ways to form complex sentences. A teacher can also make up examples like the above pairs of sentences, try out different ways of combining them, and have students discuss how alternative grammatical constructions affect meaning. In many places, sentence combining work has been included in the language arts curriculum. However, it is usually included with an assumption that students show progress in dealing with written material if they produce longer sentences. There is an underlying belief that the only difference between two short sentences and one longer one in which the two are combined is a difference in the maturity of the author. This belief ignores the point about sentence combining that we are most interested in, the point that makes sentence combining relevant to reading. This point is that different ways of combining carry meaning differences that are important to the meaning of a passage. Using an <u>and</u> or a <u>since</u> or a <u>while</u> or simply placing the sentences in adjacent positions can signal very different meanings. A failure to notice this way of conveying meaning can lead to comprehension difficulties. A few examples with a lot of alternate combinations discussed in detail should be the day's goal, not a lot of combining with no attention to meaning differences.

4.9. CLUES FROM LANGUAGE FORM

If the test results indicate that a student frequently fails to make appropriate use of local clues or clues within the same clause, it is a good guess that he is not applying the knowledge of grammatical structure, which he uses in everyday

speech, to reading. The fact that he speaks the language indicates that he can distinguish sense from non-sense in a sentence. Some of the activities suggested above, aimed at closing the gap between the different perceptions of language in speech and reading, would be appropriate.

As another approach, try some kinds of activities which involve stepping back from the actual use of language to take a look at *how* we use it. (These will have varying appropriateness to different age levels.) Playing with the way words go together to make sentences might serve to bring out an awareness of grammatical structure. Present groups of scrambled words which have to be put in order to form sensible simple sentences, such as "eat like peanuts to elephants roasted" or "lightning was the by house hit." Children will be using cues from the structure of language to unscramble the sentences. They will be working harder than they have to in ordinary reading, but they will be using the same kind of information about their language that they need to use in ordinary reading, and they will be using guessing strategies similar to those that they need in such reading.

Another approach is similar to the context clues work discussed in 4.7, but differs because of an emphasis on the structural hints within the same clause as the problem words, rather than an emphasis on inter-clausal connections and meaning as were discussed in 4.7. The idea is to make up simple sentences with one blank each. For example:

Foaming _____ crashed noisily.
The snow began to _____ yesterday.
Gloria rushed to the _____.

Have children offer candidates for filling in the blank. From similarities among the list of candidates, the class can see how the structure of the sentence constrains the choice of words. In the first sentence, a subject is needed that will probably be a noun. (Although, if you insert a comma after foaming, it could be a pronoun.) After to a verb is needed, but after to the, a noun is required. There is no denying that the meaning of the sentence also constrains the possible choice of words, but the teacher can propose alternate forms of the words given to show that the structure of the language form is important, too.

The interest that some children have in codes and secret languages can also be tapped in games designed to draw attention to the regularities and predictability of language form. Try some sentences like the following:

Sam 6-51-18-7-15-20 to 23-5-1-18 his 2-15-15-20-19.
The NLFHV IZM into its SLOV.

Have the students figure it out together. Guide them to use what they know about language and sentence structure to figure out both the "secret language" of the code and the English translation of the sentence. The students have to figure out the grammar of the code by paying attention to small details and noticing patterns--all skills which can be good strategies to transfer to regular reading. They also have to make use of their knowledge of English grammar, noticing, for example, that the number code after the word his in the number sentence has to be a noun, but the first number word must be a verb. This kind of work can make children aware of the repertoire of strategies that they can use when reading material that is difficult for them because of the topic or the vocabulary or the sentence structure.

Teachers can also provide materials that students can use in pairs that will help develop their metalinguistic awareness. The popular game, "Mastermind," requires one player to hypothesize and use new information to revise hypotheses in an attempt to replicate a pattern of colored pegs created, in secret, by the other player. Try creating a game of "Sentence Mastermind" to be played in the same way as the commercial game "Mastermind." Take some small flash cards and put one word on each card. Make a master list of the words, choosing words that can be combined in various ways to create sentences. The first player will use the flash cards with the words (instead of colored pegs as in the commercial games) to make a series of guesses with the goal of recreating the sentence that the second player has

created by choosing words from the master list (the "code" in the commercial version). After each guess, the second player gives information on the correctness of both the choice of words and location of the word in the sentence string. The students can help make word cards. The teacher and children can sometimes limit the kinds of sentences or words to be used to a particular set. In this way children whose test results point to a need to consider, say, "Noun Head" constructions could get specialized practice. Different color flash cards could be used for words that belong to different grammatical categories to make the game easier for beginners. Later, the color coding can be dropped. In order to use the sentence mastermind with longer and more complex structures, it is a good idea to provide the beginning, or ending, of the sentence and let the game be limited to only one part of a sentence. Structural Category results from the cloze test can suggest other variations on the game for specialized practice. A very nice point about the "Mastermind" game approach is that the player's successive choices remain on the board. The teacher can look at the board and see the traces of the student's reasoning process and notice the places where the student is able to apply his knowledge of the language effectively and where he has difficulty.

4.10. AWARENESS OF THE WORK WORDS DO

Some students may appear to have difficulty dealing with nouns and verbs when they are part of complex syntactic structures--a noun head plus a modifying phrase or clause, or a verb plus a complement sentence. If these students are very young, the problem may simply be a matter of normal linguistic development, and the children might benefit from exposure to language in the activities discussed in 4.1 and 4.2. But if they are a little older, it may be that they "know" these kinds of grammatical structures in the sense that they actually use them appropriately in speech: this type of knowledge, like most of our knowledge of our own language, is internalized and not a subject of conscious awareness. Students who use certain grammatical constructions in every day speech, but stumble when they encounter the same structures in reading, might benefit from activities designed to focus conscious attention on those kinds of language structures. This type of activity is intended to increase awareness of a specific kind of linguistic structure through analyzing cases of it, comparing them with other cases, and building some new cases. The expectation is that this increased awareness will increase the student's ability to deal with the problem structure when he encounters it in reading.

Suppose test results indicate some difficulty in dealing with head noun constructions. You could collect and/or make up groups of different kinds of noun phrases, and in discussions help students to analyze them. One way of analyzing constructions is by finding appropriate paraphrases. So, for example, you might present a group of noun phrase constructions like the following:

hunting men
hunting deer
hunting season

These phrases look similar, but have different internal structures, as paraphrases with head noun constructions will show. For example:

Men who are hunting.
Going hunting for deer.
The season for hunting.

Students can be led to discover appropriate paraphrases, using them in sentences to clarify their different meanings. They can then try to find other phrases of each type using paraphrases to show which phrases are of the same type and which are different. For example, hunting men is like shooting stars and boring books, while hunting deer is like shooting bottles or buying books. (In each case, test the similarity by paraphrase.) If this idea is clear, try some ambiguous constructions, such as:

growing corn
moving targets
boiling water
visiting relatives

Search for two different paraphrases to capture the two different meanings each phrase can have. This same sort of exercise can be done on groups of noun phrases with other types of prenoun modifiers, such as:

wood table	ice cream man
wood glue	ice cream maker
wood pile	ice cream cone
telephone repairman	TV show
telephone booth	TV repairman
telephone book	TV sale
telephone call	TV room
telephone conversation	TV guide
telephone dial	TV shop

and so on. This general idea can be applied to other sorts of grammatical constructions as well. The point is to get children to discuss language, to try out different ways of putting words together, and thus to build a greater awareness of language structure and facility in analyzing and manipulating it.

4.11. LONG-RANGE INSTRUCTIONAL PLANNING

At the outset of this discussion, we stated that this was a list of suggestions and ideas, all of which stand in need of trial and evaluation. None should ever be used as a gimmick, given one-shot or even occasional tries. Any teaching activity used that way *may* succeed or fail, and we will never know why. We will not have any understanding to guide modification or rejection of the activity. The suggestions made here might be of value if they are seriously implemented as part of a regular, systematic program sustained over time, and based on long-range planning. Only in such a context will it be possible to evaluate their effectiveness, and, based on that evaluation, to replicate, modify, or abandon any particular instructional strategy in an informed way.

We have found that the greatest resource for teaching strategies is other teachers. Many of the suggestions here are probably well-known to any reader who is an experienced teacher. It is hoped that some new refinements or new uses for the techniques or more reasons for doing them have been supplied. It is probably the case that thinking about language and reading and devising a test that reveals important facts about students' abilities to read will give teachers support and reasons for continuing practices that they have seen to be valuable over time. With that in mind, a final suggestion is that one good use for this chapter would be as a basis for discussion--of these ideas or others--in faculty meetings or other gatherings.

Chapter V: Building an Individual Test

5.0. SUPPLEMENTARY TESTS

In various situations, the group silent reading test that we built may need to be supplemented. Here are four such situations:

- If the test is to play an important part in the evaluation of an instructional program, then the evaluators may want to compare its results with the results of another test that attempts to test the same range of abilities.
- If a single child is being instructed in a clinical setting, the teacher may not have fellow teachers available to work on building the large numbers of tests that are needed to fill the frequent assessment schedule of an individual clinical instructional program.
- If a program is, for one reason or another, committed to oral reading, there is a need for an oral reading test.
- If the results of the group test are difficult to interpret for some children, further individualized testing may be needed.

In this chapter, we will describe an approach to an individual oral reading test that deals with the same range of skills and abilities that concerned us in building the group test described in the first three chapters. Just as that test was a modification of the multiple choice cloze testing pioneered by Robert O'Reilly's research group, the oral testing described here is a modification of the miscue analysis procedures developed by Kenneth Goodman and his research group. We begin, then, with a discussion of miscue analysis procedures interspersed with a consideration of how modifications can be made in the analysis. A final note will touch on interviewing test-takers as a way of finding out more of what is going on in the test situation, be it for oral or silent reading, given to a group or to an individual.

5.1. MISCUE ANALYSIS: AN OVERVIEW

Miscue analysis is based upon the idea that a reader reconstructs a text in the process of reading--his oral reading is evidence of what construction the reader has done. In order to do a miscue analysis, it is necessary that the reader's construction (his oral reading performance) be viewed with reference to the original text as written by the author and with reference to a retelling of the text by the reader after the oral reading is finished. The results of a miscue analysis display the tactics that a reader uses to read and show the understanding of the text that the reader arrives at. The word miscue is used to refer to elements that differ between the original written text and the text produced during the oral reading performance. It is important to note that the word *mistake* is not used: a difference may not be a mistake, that is, some differences may not hinder the reader in reconstructing the original written text so that he understands it.

To talk about reconstruction of the text as a way to talk about reading may be unfamiliar. However, if we think of reading a song or a poem, then it is easier for us to realize that understanding involves the reader reconstructing the meaning of the text. In fact, we often expect that individual readers will have different understandings or reconstructions of poems. When it comes to prose passages, particularly those in texts or tests connected with reading instruction, we allow for less variation and find it difficult to see the reconstruction involved in reading. However, there are some kinds of reading that we do in our everyday life that we talk about in retrospect that reveal the reconstructing. For example, a novice

cook read the following in a recipe:

> Put the mixture in a moderate oven until done.

However, while asking a more experienced cook for help, the novice reported the reading as follows:

> The recipe says I have to cook it in a moderate oven until it's done.
> I don't know what a moderate oven is, and how will I know when it's done?

The novice cook reconstructed put as cook, and reconstructed the subject of the imperative, you understood, as I and added an it's.

This kind of reconstruction of recipes and other kinds of procedural written texts is common, sometimes even while they are being read for the first time. We can hear people saying aloud,

> "B goes into D"

while reading an instruction which is written this way:

> Put the tab marked B into the slot marked D and fold B at the side notches.

You might catch yourself doing this kind of reconstruction when you are assembling a toy, particularly if there are a series of such instructions that differ only in the labeling of the tabs and slots.

Other examples of reconstruction can be observed when a reader speaks a dialect different from the dialect represented in the text. The reader often reconstructs the text so that what is read aloud differs from the written text and matches the reader's dialect. For example, the text might say,

> John asked whether George came.

but the reader might read,

> John asked did George come.

And still other examples of reconstruction can be noticed when a reader encounters an ambiguous construction in the written text. In some cases a reader settles on a meaning that the author did not intend; in others, the reader tries out various meanings in succession, coming up with several different reconstructions.

With the above examples in mind, it should be clear that we have all witnessed and/or experienced reading as reconstruction in quite obvious cases. Research in a variety of fields supports the view that comprehension of language, whether in listening or reading, requires that the person doing the comprehension be actively engaged in constructing the meaning.

5.2. MISCUE DATA COLLECTING

Reconstruction by the reader is an important aspect of miscue analysis. The test-taker is asked to read a passage aloud and then to retell what was read. Both tasks give information about the reader's reconstruction, but some care must be taken in collecting the data. We will describe below the procedures involved in administering a miscue interview.

5.2.1. Choosing passages. The first task is to choose the passage that will be read. The constraints on choosing the passage are all related to getting enough data about miscues and retelling in order to accurately identify the reader's strengths and weaknesses. The length of the passage and how difficult it is are the major variables, and the individual reader is important to both of these calculations. What is needed is a passage that takes the reader fifteen to twenty minutes to read and that is difficult enough to get the reader to produce at least

five miscues in the first three or four minutes. In addition, the reading must be a complete unit so that the reader can make enough sense out of it to tell it back after the oral reading.

Clearly, one passage will not be appropriate for all test-takers. Consideration must be given to how fast and how well the test-taker reads, as well as to how much background knowledge he has about the topic. It may seem as if, in order to do a miscue analysis, the teacher has to know all about the student's reading. However, gross indications of speed, accuracy, and interest from standardized tests or from the intuitions of a teacher familiar with the student will only provide enough information to start a miscue analysis. They will not provide the same detailed description of the student's reading strategies, successful and unsuccessful, that a miscue analysis will provide--a description that we believe is vital for planning instruction.

In order to be sure that the session with the student will go well, we suggest having more than one reading passage ready to use. Having some slightly more and slightly less difficult passages available will let the teacher change passages if the first few minutes of the reading by the student shows that there will be too few miscues (approximately fewer than five in the first three or four minutes) or too much frustration. Remember to base the decision to go to an easier passage on a judgment about frustration, not on the number of miscues the student produces. Students may still comprehend enough to allay frustration even while producing a great many miscues, and miscues, after all, are what we need to analyze the student's reading strengths and weaknesses.

5.2.2. The setting. The next task is to arrange for a setting that the student can be comfortable in while reading aloud and retelling. The physical setting should be quiet and away from the bustle of classroom activities. A private office would be good, but preferably not one where students usually go to be chastised or one associated with being sick. There should be good reading light and sufficient space and an electrical outlet to accommodate a tape recorder.

Another facet of the setting is the relationship between the student and the teacher. The students should understand the purpose of the task and what they are expected to do. Also, care should be taken to let students know that reading for this purpose is different from other reading they may have done with the teacher or with any other adult present--different because the passage is difficult and because the teacher will refrain from prompting, helping, hinting, giving words (even if asked), and evaluating the student's reading.

The tape recorder may be a distraction to some students, and the teacher may want to let the child record something and listen to it in order to make the machine seem more familiar. Some introductory remarks like the following should take care of establishing a workable interpersonal relationship:

> Jimmy, today I'm going to ask you to work with me using this tape recorder. I want you to read this out loud and then, at the end, tell what it was that you read. The reason we're doing this is to find out what you do when you read. This isn't to find out how well you read, but to find out what kinds of things you do when you're trying to read something that is kind of hard. If we can find out what you do that helps you to read, we can help you to read even better, and if we can find out what is harder for you to do when you read, then we can work on making those things easier. See what I mean?
>
> This book that you're going to read from and then tell about--it's harder than most things you read. You won't have a chance to look it over before you read it out loud, into the tape recorder, and I'm not supposed to help you with any parts of it or else we'd know about my reading and not yours. What you should do is try your best. If you come to a part you aren't sure about, just try your best and go on. Then at the end, you just tell back the story that you read, and I'll have, on the tape recording, you reading the story out loud and you telling the story afterwards. Okay, do you want to ask any questions? Do you want to see how the recorder works?

A conversation along these lines should work well to establish a good atmosphere for the student. Of course, the teacher best knows the students and can best decide what kind of introductory remarks would put a particular student most at ease.

5.2.3. Reading aloud. The third task involved in collecting data for miscue analysis is the reading aloud by the student. During this the teacher should make sure the recorder is working and be attentive, but not distracting, to the student reader.

5.2.4. Retelling. For the fourth task, the retelling of the story by the student, the teacher has more of a role to play. The first part of the retelling should be initiated by a very general direction from the teacher and should be accompanied by the information that the teacher will be taking notes. Something like the following will work:

> O.K., you've finished the first part, reading out loud. In the next part, I'm going to take some notes every now and then. O.K., are you ready to tell what you read? Please tell everything you can.

A very general direction like this has a good chance of getting a full retelling. However, there may still be room for further questions by the teacher. The problem is with the word "further." If a teacher asks a series of questions, the timing of the questions may affect the student's answers. By starting to ask a new question, the teacher indicates that the last answer is finished, or by refraining from asking a new question, the teacher suggests that the last answer is not finished yet. (See Cicourel et al., 1974, for a more complete discussion of how answers to tests are cooperative productions of teachers and students, not really just productions by the students.)

There are two safeguards a teacher can use to minimize the effect of questioning on answers. First, do not be afraid of silences, that is, let some time elapse when it seems that the student has finished. Second, try to control what the timing of asking the next question communicates, that is, let the same amount of time elapse after an answer that strikes you as wrong or unfinished so that differences in timing patterns do not indicate when you think a good enough answer has been given.

5.2.4.1. Probe question content. Sometimes the content of questions can influence the answers unduly, so we also control the content. This is why the teacher takes notes during the retelling. Since this miscue procedure is meant to be carried out on a variety of passages, controlling the content of questions used to probe the retelling is particularly difficult. However, if the teacher takes notes during the retelling and uses the procedure outlined here, questions can be asked which are sensitive to the information the child has given and yet are fairly neutral in terms of how much the teacher contributes to the retelling. We found it desirable to have two procedures--one for passages that were narratives and one for expository or descriptive passages. It is fairly easy for a teacher to make a judgment about whether the passage has a plot, on the one hand, or develops an idea or description of a scene, on the other hand. A modified procedure would have to be developed for procedural passages, if they are to be used, but the same general approach can be followed. Each procedure has three parts: (a) instructions about what notes to take during the retelling, (b) question "frames" to be used in conjunction with the notes, and (c) an alternate probe format for use with students whose retelling is very sparse.

5.2.4.1.1. Narrative passage probes. For passages that are narratives, retellings should include information about the characters involved and the events depicted on a fairly factual or literal level, as well as information about character development or motivation and the point or purpose or main idea of the story. These, then, are the elements that must be included in probing to get complete retellings.

Remembering that we are interested in the reconstruction of the story by the student, it is clear that our probe questions cannot be based on information about the characters or the events in the story that we think are the correct elements that must be reconstructed by each and every reader. That is, we cannot have questions about the passage that are based on our personal reconstructions of the story,

or even an interpretation that has validity according to some theory of what a passage means. If we make up questions ahead of time for a passage and give them to each student who reads that passage, the answers will only tell us how closely the student agrees with some other interpretation of the story. The answers will not necessarily give us a view of the particular reconstruction of the student.

In order to probe for a particular student's reconstruction of a narrative passage, the teacher should note the following while the child is responding to the first, general question:

- names of characters or descriptive terms (e.g. the boy)
- the first event the child mentions (e.g. The boy lost his pet dog.)
- the last event the child mentions (e.g. The dog came out of the hole carrying a bag of money.)
- some description of a thought or feeling attributed to an important character (e.g. The boy was very sad.)
- the event that is mentioned most or in the most detail or otherwise is treated as the most important by the child; if no event seems to be highlighted, treat the last event mentioned as the most important

With this information, the teacher can use question frames like the ones that follow in order to encourage the child to expand his retelling and give a broader picture of his reconstruction. To use these question frames, the teacher simply replaces the capitalized words with the appropriate information from the notes above and chooses the appropriate phrase from the alternatives in parentheses. There are five questions for narratives:

- You talked about CHARACTERS/NAMES MENTIONED BY CHILD. Were there any other (people, characters, animals) mentioned in the story?
- You said that FIRST EVENT MENTIONED BY CHILD. Did anything happen before that in the story?
- You told about LAST EVENT MENTIONED BY CHILD. Did anything happen after that in the story?
- You told me about NAME OF CHARACTER, and you said that SAME NAME (felt, thought, believed, wanted, acted) DESCRIPTIVE ATTRIBUTE ABOUT SAME CHARACTER. Did NAME always (feel, think, believe, want, act) that way in the story?
- You told about how MOST IMPORTANT EVENT MENTIONED BY THE CHILD was in the story. Why did that happen (why was that in the story)?

For some students, this procedure cannot be followed because the answer to the first general direction is too short or too general to use to build the questions. In such cases, an alternate questioning procedure can be used. It is important to avoid giving the student the impression that there is a particular reconstruction of the story that you want him to match since, in fact, you want his own reconstruction. Certain choices of language will help here. Avoid using remember and know and use can you tell (but stress the word tell and use the pronunciation of can that sounds like kin). There are two alternate questions:

- How about the people (animals, characters)? You didn't say much about them. Can you tell me who was in the story?
- How about things that happened in the story? Can you say some things that happened?

If the student responds to these questions, the teacher can go back to the questions listed above to probe further.

5.2.4.1.2. Expository and descriptive passage probes. For passages that are not narrative, the procedure is much the same. The three parts to the procedures for descriptive and expository passages are outlined here.

First, teacher notes during first retelling should include: (a) the first idea the child mentions; (b) the last idea the child mentions; (c) the names or descriptions of people, objects, or places mentioned by the child; and (d) the idea the child talks about a lot or otherwise signals to be important.

Second, question frames for probing such as the following can be used:

- You talked about (the) FIRST IDEA. Were there any other things mentioned before this in the passage?
- You told me about (the) LAST IDEA. Were there any other things mentioned after this in the passage?
- You told me about PEOPLE/OBJECTS/PLACES. Were there any other (characters, people, things, places) mentioned in this passage?
- You said something about MAIN IDEA. What seems most important to you about about IDEA?

Third, as mentioned in 5.2.4.1.1. above, an alternate questioning procedure is sometimes necessary. Two alternate questions for expository and descriptive passages are:

- How about some of the ideas that were mentioned in the story? You haven't said anything about them. What were some of them?
- You didn't say anything about (people, things, places) that were involved in this passage. Were there any? Can you tell me about them?

Similar procedures can be devised for other types of passages. The main idea is to get as complete a retelling as possible without having the questions influence the answers.

This approach to the retelling is a modification of the usual procedures discussed in articles about miscue analysis. Our modified analysis scheme (described in 5.3.) makes a slightly different use of the retelling than other miscue analyses, and these procedures suit our purposes. However, the modifications are a good idea no matter what type of analysis is used. In fact, taking care about how the teacher's interactions influence the supposedly independent behaviors of children is a good idea in any kind of test situation, or, for that matter, in any kind of educational situation. We look to children's behavior to determine what their strengths and weaknesses are so we can devise instructional plans that will maximize their potential growth. But, the children's behavior has to be seen in interactional situations that may influence their display of strengths and weaknesses in unexpected ways. Our modified procedures are one attempt to reduce such influences. (In 5.4, there is a discussion of a way to find out more about children's responses in testing situations.)

5.2.5. Review of collection procedures. Before the interview with the student, the teacher must do the following:

- get an idea of the child's reading level and area of interest;
- choose several passages that are appropriate for use with the student;
- locate a quiet place for the interview;
- arrange for a tape recorder and blank tape to be present;
- review, and practice, the introductory remarks and probe procedures suitable for use in the interview.

During the interview with the student, the teacher must do the following:

- establish a comfortable atmosphere and explain the purpose of the interview;
- check to see that the tape recorder is functioning;
- take notes during the initial retelling;
- ask probe questions that will not mask the student's reconstruction of the passage.

These techniques are not difficult to master; we have described them in detail not because they are difficult but because we wanted to make clear the rationale behind them.

If a miscue analysis is done for purposes different from ours, certain procedures may differ correspondingly. For example, if the miscue data is being collected to check on how valid the data from another test is, then it would be reasonable, and perhaps necessary, to change the procedures related to choosing the passage. In

such a case, passages might be chosen for groups of children, rather than for individual children. It would still be necessary to be sure that the passage was neither too hard nor too easy, but the interest criteria could be dismissed.

5.3. MODIFIED MISCUE ANALYSIS

Once the data has been collected, analytic procedures allow the teacher to see what the child's strengths and weaknesses are. When the reading by the child differs from the written passage, the difference is called a miscue. Miscue analysis is intended to help the teacher notice *where* the miscues are, *what kind* they are, and what they *mean*.

The first analytic task is to locate miscues, the next is to identify them, and the third is to see patterns in the miscues a student makes. Teachers can then draw conclusions from the patterns that point out which instructional practices can be profitably used with the student. Any miscue analysis is particularly interested in seeing patterns related to comprehension: does the reader diverge from the text when there is important meaning involved? Does the reader regress to correct miscues when meaning problems arise because of miscues? Our modified miscue analysis is also interested in patterns of miscues that can be categorized according to the Structural and Parts of Speech Categories that we described in Chapter II of this book. We want to know if miscues in any of these categories are related to comprehension ability.

5.3.1. Evidence of miscues. In order to locate miscues, the tape recording made by the child must be transcribed. The best way to start is to type up, with triple-spacing, the passage read by the student. If this is done, the only parts of the tape that have to be transcribed are the parts where miscues appear--where the student's reading diverges from the text of the passage. Burke and Y. Goodman (1970) describe in detail how the typescript can be annotated to reveal what needs to be known about each miscue. The annotations that we found workable for our purposes can best be described in eight categories. Each category is a different kind of evidence of a miscue. Sometimes, the same part of the written text may have several different pieces of "Evidence" identifying it as a miscue.

The first four categories are easy to notice at the word level, and easy to annotate, too. They are:

● "Omissions." When the student leaves out part of the text. Note this by drawing a line through the word or phrase. Sometimes, it is a period that is omitted, and in this case use an X to cross it out. Examples:

The boy sat ~~down~~.
The ball flew X Over the fence it went.

● "Insertions." When the student adds something that is not in the written passage. Note this by putting a caret in the text and writing the inserted word over it. Sometimes it is a period that is inserted. Examples:

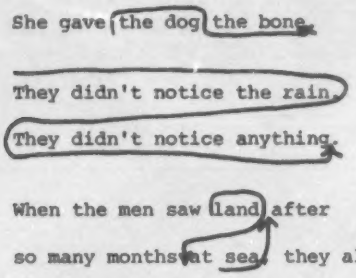
Jenny jumped ^ up and down.
The ball flew X Over the fence ^ . it went.

● "Substitutions." When a reader uses a different word or phrase from the one that appears in the written text. Note this by writing what is substituted by the reader over the part of the text that it is the substitute for. Sometimes a question intonation is substituted for a statement or vice versa. Note this in parentheses over the segment as (question into.). Examples:

Gloria watched the telephone television
Janet wanted what did (question into.) Harry put down.

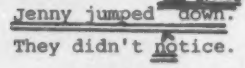
● "Ordering." When a reader puts elements of the passage in a different order

from the way in which they appear in the written text. Note this with a curved arrow. Sometimes this happens with a whole line of text or between two lines of text. Examples:


She gave the dog the bone.
They didn't notice the rain.
They didn't notice anything.
When the men saw land after
so many months at sea, they always...

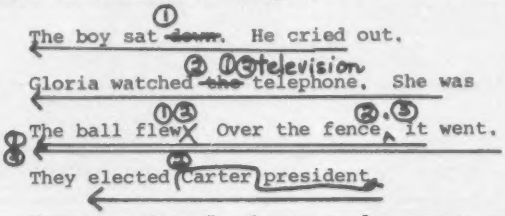
The next four categories are a little harder to notice. If you get caught up in the enjoyment of listening to the child read, or if you are trying to figure out what the miscues mean, you will be too distracted to notice these. Try listening once to the tape for enjoyment before you do the annotations, and try to wait to determine what the miscues mean until after the annotation is completed. The categories are the following:

● "Repetition." When the reader says exactly the same thing more than once. The repetition may be exactly what appears in the written passage, or it may be a repetition that is, or includes, an "Omission," "Substitution," "Insertion," or "Ordering" difference. Note a repetition by underlining twice the words that are repeated. Examples:



(Remember to keep the line unbroken to indicate that the unit was repeated as a whole.)

● "Regression." When the reader returns to an earlier point in the text but says something that is different the second time. Note this with an arrow that has the point at the place in the text where the second try begins and has the other end stop where the reader stopped to go back for a second try. Sometimes regressions "fix up" earlier miscues, but sometimes they introduce new miscues or preserve old ones. Some regressions include changes in intonation that are particularly hard to notice. Also, there may be more than one regression referring to a particular piece of the written passage. These situations can be noted by using numbers in circles. Whenever there is a regression, use numbers in a circle next to any other miscues involved in the piece of text covered by the regression. For example, if a miscue is in both the first try and the second try, use a circled ① and a circled ② next to it. When there is more than one regression, put the circled numbers next to the point of the arrow. Examples:


The boy sat down. He cried out.
Gloria watched the telephone. She was
The ball flew Over the fence it went.
They elected Carter president.

● "Uncertainty." When a reader pauses or uses an "is-that-right" intonation in

a text. This kind of intonation sounds like a one-word question. It often occurs when an unexpected or an unknown word is encountered. The pauses are quite a subjective matter. The general idea is to mark unusual pauses that are longer than those the reader usually uses, or pauses that occur in the parts of a sentence where they do not seem to fit. Note these with a caret in the place in the text in which they occur and a question mark above the caret. Examples:

It is easy to grow a candy tree ? ^ if you

The milk was luke ? ^ warm.

The milk was ? ^ lukewarm.

Traitors were unknown in the world ^ ? words of Henry O.

● "Decoding Intonation." When the reader delivers words without normal rhythm, stress, and intonation. Often, "spelling pronunciation" accompanies this and, for example, the reader sounds the first a in away like the second one. By decoding intonation we do not mean the same as what is meant by the phrase "reading without expression." In fact, decoding intonation is meant to pick out certain words or phrases that are unusual given the rhythm, stress, and intonation the reader uses for most of his reading; whereas reading without expression is used to refer to the usual way the reader deals with the whole passage. Note the words or phrases that are pronounced in this unusual way by putting a wavy line under them. Examples:

At five o'clock the commuters begin to

Grandpa gave Ben a homing pigeon.

actually

I have been waiting exactly one hour!

Altogether, then, there are eight different annotations to use on the typescript as ways to locate and transcribe the miscues a reader produces during his oral reading. Below, there is a sample paragraph in three parts to illustrate the procedure. First, there is the written text. Following that is the text of what you would hear if you listened to the tape recording made by a reader. Finally, there is a typescript with the miscues annotated.

5.3.1.1. Sample from a passage to be read.

The New House

Mrs. Alexander was trying to fix dinner. First, though, she had to find where the boxes marked for the kitchen had gone. The boys had unloaded the station wagon in a hurry and rushed back to the old house to get the final load of boxes.

"What's the use," she said aloud. "Put the food in the bedroom. Put the pots and pans in the bathroom. Put the underwear in the refrigerator!" Her voice rose along with her frustration.

"Mom, I don't have the underwear." Little Mark looked around at the open boxes. "How come we have to put it in the 'frigerator? Why do we have to do everything different?" Mark started to cry while he talked and peeled tape off boxes. "Can't we have drawers in our bedroom in this house? I don't like new houses. I like old apartments. I can't have my friends, can't ride elevators, can't have drawers for my stuff. And I'm hungry, too. No milk or apples in the 'frigerator in new houses."

Mrs. Alexander had started to laugh when she saw that her five-year-old son had misunderstood her complaint for an order. But, then, seeing how upset he was getting, she held out her hand and led him out of the kitchen. She stopped looking for the kitchen boxes. Dinner could wait. Mark needed

some help to understand that moving wouldn't change everything. "As a matter of fact," she thought, "we can go back to the old neighborhood. Have dinner at the diner near the old apartment. We could stop in and say thanks to everybody who helped us. We can finish unpacking tomorrow."

5.3.1.2. Sample of an oral reading.

The new house. Mrs. Alexander was trying to fit dinner...to fix dinner. First though she had to find out the boxes marked kitchen had gone (rising intonation on gone)...The boys had unloaded the station wagon...the station wagon in a hurry and rushed back in the old house to get and find the load of boxes. What's the use she said out loud. Put some food in the bedroom. Put the pots and pans in the room. Put the underwear in the refrigerator! Her voice rose alone with her fr...us...tra...tion. Mom don't have the underwear little Mark. Look around at the open boxes. (The following is in a high-pitched childish sounding voice) How come we have to put it in the refrigerator? Why do we have to do everything different? (The reader resumes his normal voice) Mark started to cry while he talked and peeled...and peeled tape off boxes. (The reader resumes the childish voice) Can't we have drawers in our bedroom in this house? I don't like new houses. I like our old apartment. I can't have my friends. I can't have my elevators. I can't have drawers for my stuff. And I'm too hungry. No milk or apples are in the refrigerator in new houses. (The reader resumes his normal voice) Mrs. Alexander started to laugh when...Mrs. Alexander started to laugh. When did she see her five year old son had mis...under...stood...had misunderstood her com...plain... for an order. But? But then seeing how upset he was getting she held her hand out and led him out. Out of the kitchen. She stopped looking for the kitchen... boxes...for the kitchen boxes. Dinner could wait. Mark needed some help to understand that moving would change everything. As a matter of fact, she thought, we can't go back to the old neighbor...neighborhood. Have dinner at the dinner... Have dinner near the old apartment. We could stop and say thanks to everybody. Who can help us we...Who can help so we can finish packing tomorrow?

5.3.1.3. Sample typescript annotated with miscues.

The New House

Mrs. Alexander was trying to fix dinner. First, though, she had to find the boxes marked kitchen had gone. The boys had unloaded the station wagon in a hurry and rushed back to the old house to get the final load of boxes.

"What's the use," she said aloud. "Put the food in the bedroom. Put the pots and pans in the bathroom. Put the underwear in the refrigerator!"

Her voice rose along with her frustration.

"Mom don't have the underwear" Little Mark look around at the open boxes. "How come we have to put it in the 'frigerator? Why do we

have to do everything different?" Mark started to cry while he talked and peeled tape off boxes. "Can't we have drawers in our bedroom in this house? I don't like new houses. I like old apartments. I can't have my friends, I can't ride elevators, can't have drawers for my stuff. And I'm hungry, too. No milk or apples in the 'frigerator in new houses."

Mrs. Alexander had started to laugh when she saw that her five-year-old son had misunderstood her complaint for

5.3.1.4. Cautionary note about annotating. As you can see, the samples given above are related to each other. It would be good practice for you to continue on with the sample typescript annotation by using the original passage in 5.3.1.1. and the oral reading in 5.3.1.2. At the least, it would be valuable to read from the typescript and see that your reading, using the notations, matches the oral reading in 5.3.1.2.

However, as you do annotation of a typescript, there are a few things to keep in mind. Some of the judgments have to be made carefully and subjectively. For example, in the first paragraph of the typescript, we noted out as an "Insertion" and where as an "Omission." We judged that out was not a "Substitution" for where. On the other hand, we decided that find was a "Substitution" for final and, in the second paragraph, that some was a "Substitution" for the. The criteria for our decisions are the following:

- if the miscue is similar in letters to the text word, it is a "Substitution";
- if the miscue is a word frequently associated with the prior word (like out with find), it is an "Insertion";
- if the word is a grammatical function word (see Chapter II) and replaces a similar function word, it is a "Substitution," whether or not the letters are alike.

When you are annotating a miscue typescript, it is important that you recognize these kinds of problems and develop a way to be consistent with your identification. A set of decision rules, like the ones given above, is one approach to dealing with the problem. Another approach is to alter the category system. For example, we could decide that there would be no category for substitutions and instead categorize each miscue that meets our current description of substitutions as both an *omission* of the word in the text and an *insertion* of a new one.

We know of no way to avoid the problem or to decide among the solutions; the readings listed under miscue analysis in the bibliography will show you other solutions (and other problems!) with this part of the procedure. Eventually, reading theory may assist us in deciding which solution is preferable, but meanwhile, we must recognize the problem, be consistent about the solution, and use a solution that will serve our purpose of finding out about reading ability.

5.3.2. Consequences of miscues. The very word "miscue" suggests that analysis of this type will pay special attention to what happens as a result of the reader's divergence from the text. By refraining from using the word mistake, Goodman and his colleagues helped reading educators recognize that sometimes there are no unfortunate "Consequences" related to a miscue. Our category system differs slightly from that which is most often used by miscue analysis. The Burke and Goodman (1970) manual is the best source for the traditional system.

Actually, not only do our Categories of Consequences and the earlier Categories of Evidence (5.3.1) differ from most miscue analysis, but we differ in considering Evidence and Consequences separately. One rationale for considering these as different enough to treat separately is conceptual: the Evidence Categories deal with the *directly observable behavior* of the individual reader, whereas the Consequence Categories deal with *inferences* about how the reader's behavior affects the understanding of the written passage.

A second reason for considering Evidence and Consequences as separate is practical: if a teacher is short on time and interested only in finding out whether the miscues a student makes have a deleterious effect on comprehension, the teacher can record the consequences of each miscue directly from the tape recording. Leaving out the work associated with annotating the typescript saves time, but at first it is quite difficult to work directly from the tape. The Categories for Consequences involve not only the oral reading but the retelling. There are four Categories of Consequences in our system, and they can co-occur with any of the Categories of Evidence.

The first category to consider is "Sentence Level Syntax." When the sentence is read, with the miscue in it, is it an English sentence? Or does the miscue make it ungrammatical? Issues related to these judgments are discussed in Chapter II of this book, particularly in the section related to choosing distractor words for the multiple choice test (2.6). Each miscue can be coded in this category in one of three ways:

- *same*--no change in the syntax of the sentence. Code this with a plus sign (+);
- *different*--the sentence with the miscue is grammatical, but the syntax is different from the syntax of the original sentence in the text. Code this with a minus sign (−).
- *ungrammatical*--the sentence with the miscue is ungrammatical in the variety of English in which the original passage was written. Code this with a zero (0).

There are two important notes related to this category. First, the category is concerned with the form of the sentence, not the meaning. If the miscue changes the meaning of the sentence but does not make some part of its form inappropriate or does not change the relation of the words to each other, it is coded as having the *same* syntax. If the words in the sentence change their relation to each other, whether or not the meaning of the sentence changes, the miscue is coded as having *different* syntax.

Second, the judgment of ungrammaticality is relative to the dialect or style in which the passage is written. In the sample passage above (5.3.1.1), a casual conversational style is used, and sentences that lack a subject or a predicate are sometimes permissible, as in the last sentence of the third paragraph, "No milk or apples in the 'frigerator in new houses." Miscues that result in sentences like this in the dialogue section of the passage would *not* be coded with a zero.

Similar situations arise, and miscues should not be coded as ungrammatical, if the miscues match a passage that is written in a regional dialect or a social class dialect or a dialect that is historically different. Putting in an extra th as a verb ending when reading a passage from some earlier English versions of the Bible would not necessarily be coded as ungrammatical; however, putting one in a passage taken from a current issue of the *Reader's Digest* would be coded as ungrammatical. Examples:

Passage text: Mrs. Alexander was trying to fix dinner.
Reader miscue: Mrs. Alexander was trying to fit dinner.
Code: 0 (ungrammatical; verbs like fit cannot occur with nouns like dinner as their object)

Passage text: She had to find where the boxes were.
Reader miscue: She had to find out where the boxes were.
Code: + (the syntax is the same)

Passage text: She had to find where the boxes had gone.
Reader miscue: She had to find out the boxes had gone.
Code: - (grammatical as a sentence with a noun clause; as object, different from a sentence with a free relative clause as in the written passage)

Passage text: The boys rushed back to the old house.
Reader miscue: The boys rushed back in the old house.
Code: +

Passage text: They rushed back to get the final load of boxes.
Reader miscue: They rushed back to get and find the load of boxes.
Code: -

The second Category of Consequences is "Sentence Level Meaning." When the sentence is read with the miscue in it, does the meaning seem the same as the meaning of the original sentence or not? It is important to remember to judge the meaning, regardless of whether the sentence is grammatical or not. Each miscue can be coded in this category in one of three ways:

- *same*--no change in meaning. Code with a plus sign (+).

Examples:

Passage text: She had to find where the boxes had gone.
Reader miscue: She had to find out where the boxes had gone.
Code: +

Passage text: the boxes marked for the kitchen
Reader miscue: the boxes marked kitchen
Code: +

Passage text: They unloaded the station wagon in a hurry.
Reader miscue: They unloaded the station wagon...the station wagon... in a hurry.
Code: +

Passage text: "What?" she said aloud.
Reader miscue: "What?" she said out loud.
Code: +

- *different*--the sentence with the miscue has meaning, but one that is different from the original sentence in the passage. The miscue sentence may have a meaning that is contradictory to the sentence in the passage, or it may be irrelevant. Code this with a minus sign (-). Examples:

Passage text: Put the food in the bedroom.
Reader miscue: Put some food in the bedroom.
Code: -

Passage text: Mom, I don't have the underwear.
Reader miscue: Mom don't have the underwear.
Code: -

Passage text: I like old apartments.
Reader miscue: I like our old apartment.
Code: -

Passage text: Mrs. Alexander started to laugh when she saw her five-year-old son.
Reader miscue: Mrs. Alexander started to laugh. When did she see her five-year-old son?
Code: -

Passage text: We can go back to the old apartment.
Reader miscue: We can't go back to the old apartment.
Code: -

● *lack of meaning*--the sentence with the miscue does not convey meaning. It is important to remember two things. First, the unit considered here is the sentence. The sentence may be considered meaningful in the light of the whole passage, but the sentence alone is gibberish or anomalous, i.e. it expresses no meaning or a contradictory or nonsense meaning. Second, the point of view here is the analyst's. The reader may show in his retelling that he picked up some meaning from the sentence, but the sentence is gibberish or is anomalous when read by the analyst. Other categories will consider meaning on the level of the whole passage and from the point of view of the retelling by the reader. Here, however, judgments will be based on the sentence alone and on the analyst's view of meaning. Code this with a zero (0). Examples:

Passage text: Mrs. Alexander was trying to fix dinner.
Reader miscue: Mrs. Alexander way trying to fit dinner.
Code: 0

Passage text: Janet wanted what Harry put down.
Reader miscue: Janet wanted what did Harry put down.
Code: 0

Passage text: Everyone knows that bachelors are not married.
Reader miscue: Everyone knows that bachelors are married.
Code: 0

Passage text: I think ideas are worthless.
Reader miscue: Ideas think are worthless.
Code: 0

The third Category of Consequences concerns the meaning of the whole passage, i.e. "Discourse Meaning." The basic issue is whether the miscue causes the sentence it is in to be inappropriate for the meaning of the passage. Here, like in the category of "Sentence-level Meaning," we are concerned with the point of view of the analyst, not the reader. Given the meaning that the analyst derives from the written passage, how does the sentence with the miscue fit in? Each miscue can be coded in this category in one of three ways:

● *contributes*--the sentence with the miscue is appropriate to the meaning of the passage and expresses an idea that is important for understanding the passage as a whole. Notice that some of the burden here is on the original sentence. If the particular sentence is important for understanding the passage, then the miscue must not sabotage this function in order to be considered contributory. However, some sentences in the written text may be redundant or otherwise unimportant for understanding the passage, and a miscue in such a sentence could not be considered contributory. Care must be taken to notice, particularly with redundancies, that at least one expression of the meaning is a potential candidate for being considered contributory. Code this with a plus sign (+). Examples (judged with reference to the passage in 5.3.1.1):

Passage text: Mrs. Alexander was trying to fix dinner.
Reader miscue: Mrs. Alexander was trying to fit...to fix dinner.
Code: +

Passage text: She had to find where the boxes had gone.
Reader miscue: She had to find out where the boxes had gone.
Code: +

Passage text: "What's the use," she said aloud.
Reader miscue: "What's the use," she said out loud.
Code: +

● *hinders*--the sentence with the miscue is inappropriate to the meaning of the passage and expresses an idea that conflicts with the meaning and confuses the reader. Again, some burden is on the original sentence. Most of the time, a miscue in a sentence which does not contribute much to the meaning of the whole passage is unlikely to hinder understanding. Again, also, care must be taken to consider one expression of a redundantly expressed notion as a candidate for this category. In cases where the reader regresses and tries again, any miscue that occurred only in the first try *must not* be coded as hindering meaning. Code miscues which hinder the meaning of the passage with a minus (-). Examples (judged with reference to the passage in 5.3.1.1):

Passage text: They rushed back to the old house.
Reader miscue: They rushed back in the old house.
Code: -

Passage text: Her voice rose along with her frustration.
Reader miscue: Her voice rose alone with her frustration.
Code: -

Passage text: "Mom, I don't have the underwear."
Reader miscue: "Mom don't have the underwear."
Code: -

Passage text: We can go back to the old neighborhood.
Reader miscue: We can't go back to the old neighborhood.
Code: -

● *irrelevant*--the sentence with the miscue neither contributes to the understanding of the passage nor hinders it. A miscue that is made only on the first try at a sentence and is later changed is irrelevant. A miscue in one of the expressions of an idea that is redundant is irrelevant. All miscues that are repetitions are irrelevant. Code this with a 0. Examples (judged with reference to the passage in 5.3.1.1):

Passage text: Mrs. Alexander was trying to fix dinner.
Reader miscue: Mrs. Alexander was trying to fit dinner...to fit dinner.
Code: 0

Passage text: They unloaded the station wagon.
Reader miscue: They unloaded the station wagon...the station wagon.
Code: 0

Passage text: Put the pots and pans in the bathroom.
Reader miscue: Put the pots and pans in the room.
Code: 0

Passage text: with her frustration.
Reader miscue: with her fr..us...tra...tion.
Code: 0

The fourth Category of Consequences takes into account the retelling of the story done by the reader during the interview, i.e. "Retelling Meaning." On the one hand, this category is the most relevant for discovering whether any patterns of miscues are related to the reader's abilities or problems with understanding what he reads. Some students may show us that, even though they make many miscues of a certain type, they understand the passage. Others may show us that they do not understand when

they make miscues of one type, but do understand when they make miscues of another type.

On the other hand, however, this category is the most subjective and relies on something like detective work on the part of the teacher. The reasons for this are many. First, even with the best conditions during the data collection, there is no guarantee that the reader's retelling of the story accurately reflects his understanding. One child may be competent at comprehension but less able to verbalize summaries to an adult; another child may redefine the task and decide to tell a story that "tops" the written story, following, perhaps, a cultural tradition of verbal dueling; still other children may not enter into the test situation and decide that retelling a story to an adult who has heard you read it and who has the reading on a tape recording is not a task to be taken seriously. (We deal with some of the third type of children by telling them that we want to know how they would tell the story to another child who does not have a chance to read it or to listen to a reading. This may or may not work with any individual child on any given day.)

A second set of reasons is related to the ability of the analyst to locate the meaning in a reader's retelling. Cognitive psychologists, like Carl Fredericksen (who worked with some retelling by the same children we worked with), have spent a great deal of time trying to devise a reliable system for locating the meaning in retellings and for recording it in a way that will allow comparisons with the original text. There is not yet available a reliable system that can be used by an individual teacher working with children in a school setting. This is because of the variety of ways that children may choose to express the meaning from the original story. During a retelling, children may rearrange the elements of meaning so that they are difficult to notice. Elements from the end of the story may be used in a kind of summary at the beginning of the retelling and vice-versa. Children may rearrange the elements so that some information which was stated outright in the original story need not be stated in the retelling, since it is implied by other things that are stated.

A third set of reasons for the difficulty in using this Category of Consequences is related to the fact that misunderstandings early in a passage can lead the reader to interpret later elements of the story in a different way, resulting in a totally different passage. That is, a misunderstanding is not independent. This happens with all kinds of connected language; most of us have had a similar experience in a conversation where the misunderstanding of a key point early in the conversation goes undetected for quite some time. Much of the humor in Abbott and Costello routines revolves around this aspect of connected language. In fact, looking at some retellings can be quite humorous. The story the child is telling is not the one in the written passage, but we can see how it grew, so to speak, from one or two misunderstandings, and how it was nurtured by perfectly legitimate interpretations of later parts of the story.

The only safe-guard available for any of the problems that make this category so subjective is the diligence and sensitivity of the teacher who is analyzing the data. The basic question for this Category of Consequences is whether or not the miscue can be shown to have affected the child's understanding of the passage as evidenced in the retelling. We are interested in "Discourse Meaning," as in the third category, but here we take the reader's viewpoint. Is the idea from the sentence with the miscue represented in the retelling *and* does it contribute to the meaning being developed in the retelling or cause confusion? On a second level, we must also ask whether the meaning it contributes to or hinders is the same as or different from the meaning of the original written passage.

In order to code in this category, it is necessary to work in two directions: go through the miscues to see how they show up in the retelling *and* go through the retelling and see how miscues may have contributed to the meaning that is reconstructed by the reader. We used the following codes for this category:

● The idea in the sentence with the miscue contributes to the overall meaning of the retelling and it is about the same, in this part, as the meaning of the original written passage. Code this with a plus sign (+).

- The idea in the sentence with the miscue is related to a confusion or contradiction in the overall meaning of the retelling, but the retelling is about the same, in this part, as the meaning of the original written passage. Code this with a minus sign (−).
- The sentence with the miscue is not related to anything in the retelling. Code this with a zero (0).
- The idea in the sentence with the miscue contributes to the overall meaning of the retelling, but in this part the retelling is different in meaning from the original passage. Code this with a plus sign that is circled (⊕).
- The idea in the sentence with the miscue is related to a confusion or contradiction in the retelling, and the retelling, in this part, differs from the meaning of the original passage. Code this with a minus sign that is circled (⊖).

The coding in this category will identify miscues that do not interfere at all with comprehension (+), those that cause confusion (-), those that interfere so much with comprehension that the reader believes the passage means something other than it does (⊕), and those that are related to the reader omitting an idea in the retelling (0). The last code, (⊖), is less informative about problems in comprehension. These miscues are points where the reader's unusual interpretation of the passage confronts a piece of text that will not yield to his interpretation.

It is often the case that "Insertions" that are coded as (+) for the first two categories ("Sentence Level Syntax" and "Sentence Level Meaning") are not comprehension problems and get coded as a (+). The insertion of out after find in the reading annotated in section 5.3.1.3 is an instance of this. Examples of confusion, to be coded here with a (-), are often "Substitutions" that are coded as (-) for "Sentence Level Syntax" or semantics. For instance, the find for final in the reading in 5.3.1.3 is such a case. Often, "Omissions" that are coded as (-) for syntax and semantics at the sentence level turn out to be cases of the reader constructing a different meaning and get coded as (⊕) in this retelling category. An example is the omission of I in the reading in 5.3.1.3. Sometimes, places where the reader used "Decoding Intonation" are omitted from the retelling and get coded (0) for this category. The word misunderstood is an example of this in the reading in 5.3.1.3. Examples of the last code, (⊖), are sometimes announced by the student in the retelling. Children say things like, "I don't know why the mother said they couldn't go back to the old place if they were already there" in relation to a miscue that substituted can't for can. The examples here, except for the last one, are based on the reading aloud given in full in 5.3.1.2. and the first retelling given in the next section.

As mentioned previously, this approach to working with the retelling data requires the teacher to do quite a bit of detective work. After three or four miscue analyses, it is easier to do them. But, it is probably a good idea to ask someone to go over your conclusions with you from time to time. The aim is to capture, as much as possible, the consequence of the miscue from the reader's point of view. Since so much subjectivity is involved in this category, it is easy for the teacher/analysts to impose their own meaning on a child's retelling. Checking with someone else might reveal this to the teacher. This treatment of the retelling is different from the treatment in most other miscue analyses. In other articles, you will find a more global treatment of the retelling which turns out to be even more subjective. So, with caution, we suggest this procedure in order to find out more about the Consequences that miscues of different kinds have for a reader who is trying to understand a passage.

5.3.2.1. Samples of readers' retelling. The following passages are retellings of the passage given in 5.3.1.1. The first version is by the reader whose oral reading is given in 5.3.1.2. The second version is by a different reader. In both versions, the first paragraph is in answer to the general direction. The lettered paragraphs are answers to the probe questions for narratives (in 5.2.4.1.1.), and follow the order of the questions as they were presented in that section.

Neither of the following retellings is what we would expect from the passage. In the first one, the reader thinks the family has not moved yet but plans to do so. In the second one, the reader thinks that the family changes plans and moves

back to the old house. Of course, some retellings are more accurate. These might be good for studying, though, because they are so different. The first one could be used to practice coding in relation to 5.3.1.2 above.

5.3.2.1.1. Retelling by reader recorded in 5.3.1.2: These people were going to go to a new house and it was a mother and a little boy named Mark. Umm, the mother was busy making dinner and so she, well she was packing, too. Packing all the boxes. Umm she was very busy. And so she couldn't find the underwear and she told the little boy to look around for it. Then, then, she told him to put things in all the wrong places. Pots and pans and food and underwear. And the little boy, Mark? He started crying and saying that he didn't want to go to a new house and that he was hungry. And so and so his mother, her name was Mrs. Alexander, she said they just had to move, they just couldn't stay in the old neighborhood. But she said they would go right out and eat somewhere and they would find someone to help them finish up packing the next day. Umm that's all.

(a) No. Just the mother and the little boy.

(b) No, nothing. It just started right up. Right there.

(c) No, not in the story. I guess they just ate and then it was time for bed or something.

(d) Well, he was sad but then when he went out and ate he probably wasn't anymore. Oh, and when they got someone to help them pack things he wouldn't be so sad. They just really had to move so there was no use him crying about it.

(e) They had to move and it was too hard for them to do it all by themselves. Umm, the mother was getting all mixed up and the little boy was crying. They just had to get someone to help them because they just did. The little boy was only five.

5.3.2.1.2. Retelling by a different reader: A mother wanted to make dinner but she couldn't find the things to cook with, you know. She, they had just moved to this new house. And so she was talking to herself about how everything was in the wrong place and everything and the little boy, he was five, he thought she was talking to him. And it was funny because she said someone could put the underwear in the refrigerator, you know, because everything was in the wrong place. So even though she put Kitchen on the boxes she needed to make dinner with, um, they weren't, she couldn't find them in the kitchen. But the little boy, she th..., he thought she meant he was supposed to keep his underwear in the ice-box and he was crying and scared and he didn't want to do that and he missed his old house and he didn't like his new one. And so then his mother said he could stop crying and they would go back to their old house.

(a) Yeah some boys were helping them to move and some other people, too, some people who lived near where they lived before.

(b) Well, it didn't say in the story but they must have been packing and hauling lots of stuff and, you know, moving beds and everything.

(c) They had to eat out because they couldn't find the food and pots and pans. And they ate on their way back to moving back to their old place, right?

(d) Well, he didn't feel scared before. He used to, it *said* he used to, play with his friends and play on the elevator and stuff and he wasn't scared then. And then when his mother told him they could go back and live in their old house they, he didn't cry anymore.

(e) Because, uh, because that's what it's like to move because you can't find where you put anything and um without that...I mean, if everything was okay, if she could find everything she never would have found out about her son and how, how, scared he was and they would have stayed in the new house and all.

5.3.2.2. Sample coding sheet. A coding sheet is the record of what kinds of miscues there are in a student's oral reading and what the consequences are of each miscue. The coding sheet that follows is suited to the Categories of Evidence and the Categories of Consequences that we devised and described above. A coding sheet used in more traditional miscue analysis can be found in the Burke and Goodman (1970) manual.

To use the sheet, the analyst writes in the relevant section from the text of the original passage and the reader miscue. Put an X in one of the evidence category boxes and put in the proper code (0, +, -) as described above for each of the consequence categories. Some examples have been filled in based on the oral reading

CODING SHEET

Student's Name _____

Analyst's Name _____

Text Version	Reader Miscue Version	Evidence								Consequences			
		Omissions	Insertions	Substitutions	Ordering	Repetition	Regression	Uncertainty	Decoding Intonation	Sentence Syntax	Sentence Meaning	Discourse Meaning	Retelling Meaning
to fix dinner	to fit dinner			X						O	O	O	+
to fix dinner	to fit dinner..to fix dinner					X				+	+	+	+
misunderstood	mis...un...der...stood								X	+	+	+	−

and retelling given in the sections above. A coding sheet makes it easier for the teacher/analyst to notice patterns in the reading behavior of the student. Before we consider the patterns that can be noticed, we will present one more modification in miscue procedures.

5.3.3. Categorizing miscues. In the first two chapters of this book, we describe in detail two ways to categorize words that are omitted from a passage in order to build a cloze test. We refer to these as Structural Categories and Parts of Speech Categories. Chapter I gives some of the reasons we have for believing that these categories can help us understand about the strengths and weaknesses of a reader's strategies. Chapter II explains how to identify a word as a member of one category or another.

Miscues can be categorized in the same way as cloze test items, and by doing these kinds of categorizations, we will have more information about the strategies that a reader uses and about how effective these strategies are, given the goal of comprehension.

Briefly, Structural Categories tell us where information is located that gives the reader a clue to the word being categorized. Examples of two of these categories are the following:

● "Local." The word in the original text can be figured out on the basis of two words before or after it. Example:

Put the food in the bathroom.

● "Separate Paragraph." The word in the original text can be figured out on the basis of information from a separate paragraph. Example: "dinner" in the fourth paragraph of the passage in 5.3.1.1 can be related to the first paragraph reference to "trying to fix dinner."

To use these categories, and the others described in Chapter II, in miscue analysis, the analyst needs to decide what category the word in the original text belongs to and then what category the miscue belongs to. This will answer two questions about the reader: first, is there a kind of structural cue that he has more trouble with than with other categories; second, which structural cue category does he rely on too much, even when the printed text shows that he should not? For example, in a text passage that says, "Gloria watched the telephone," and the miscue is, "Gloria watched the television," we can see that the reader uses "Clause" level clues, even when he should not, and that he does not use information from elsewhere in the paragraph, given the fact that the paragraph was about Gloria waiting for an important phone call. In 5.3.1.2, the reader shows a problem with using clues in complex sentences, using "Local" clues instead. Notice the adjustment made in paragraph four of that passage: the reader adjusts the verb to create a question to fit the "Local" clue from when, and he ignores the clue from the matrix clause to which when is subordinate.

The Parts of Speech Categories are also described in Chapter II, and they can be used in miscue analysis in a similar way. The questions here are whether the reader more often makes miscues when encountering one Part of Speech than another, and whether the miscues show that the reader changes words to a certain Part of Speech more than to others. Traditional miscue analyses code sheets record some Parts of Speech Categories, but not the set that we describe in the earlier chapters as those that are especially relevant to comprehension diagnosis. The coding sheets can be adjusted to show these categorizations of miscues by adding additional columns. Add two columns for Structural Categories and show what category the original text item belongs to and what category the miscue belongs to. Also add two other columns for Parts of Speech Categories showing the same data.

Just as in our earlier discussion of categories for a cloze test we suggested that the categories might be better for some school situations if they were different, so do we suggest that the categories used in miscue analysis should be designed to fit the philosophy, theory, and methods related to reading instruction in a particular school setting. If (in spite of this book) a school setting believes that phonics alone is the important part of reading, miscue categories can be devised to show which skills in phonics the reader has ability in and which ones he

has trouble with. For example, the reader in 5.3.1.2 uses fit for fix and alone for along. Certain category systems that paid attention to letter identification could allow the teacher to notice the strategies this child had trouble with. The main point is that miscue analysis is neutral as to reading theory; using a category system to code miscues adds information about the student and must be devised based upon a theory or view of reading that makes sense to the school staff who will be using the analysis. The key question is: once you know this piece of information about the reader, does it tell you anything about how to plan an instructional program? If the answer is no, the category system is not worthwhile. We feel (and Chapter IV demonstrates) that Structural Categories and Parts of Speech Categories have clear implications for instruction.

5.3.4. Patterning of evidence, consequences, and categories. The real analysis, in miscue analysis, is a search for recurrent patterns. When the work is done for research purposes or to check on the validity of some other system of testing, statistical methods can be employed to insure that the patterns are not due to chance. Several of the articles in the bibliography section on miscue analysis identify statistical measures that can be used. Here we are more interested in the less institutional uses of miscue analysis. Teachers/analysts who have a great deal of other information about their students can rely on this knowledge to place limits on their conclusions--limits that are as good as, if not better than, the limits that statistical measures will offer. Teachers/analysts can also check on the reasonableness of their conclusions by monitoring the effectiveness of the instructional program their conclusions point to.

There are two ways to use the coding sheets to look for patterns. The first way is simply to look at the rows of X, +, 0, and - category symbols and see if any particular combination turns up very often. The analyst might notice, for example, that when there is a complement-taking verb, one of our Parts of Speech Categories, the reader regresses, inserts a pronoun, makes the complement clause into a new sentence, and that this behavior has as a consequence a hindrance to the "Discourse Meaning" that gets omitted from the retelling. This "noticing" is simply a reading of a pattern of co-occurrences on the coding that recurs several times for a given reader.

To be more confident of the importance of the patterns that are noticed, the analyst can establish percentages for the basic category he is using. In order to do this, it is necessary to go to the original passage and see how many possible occasions there were for readers to make miscues of this type. This number is equal to 100%, and from it the analyst can determine what percentage of the time the reader miscued at all in the category *and* what percentage of the time the miscue matched the particular pattern. For example, there may have been twenty complement-taking verbs and fifteen of them were involved with miscues, ten of which were in the pattern described above. So, 50% of the time the pattern occurs, and 75% of the time some miscue occurs. A pattern like this is clearly significant to a teacher.

The second way to look for patterns among the Evidence, Consequences, and categories recorded on the coding sheet is to treat it as an answer sheet. The analyst has to come up with the questions. Good questions to start with can be based on the Consequences. When does the reader do a good job of getting "Discourse Meaning" and preserving it in his retelling? The categories and Evidence that are the answer here will be a profile of the reader's strengths. The opposite question will identify the reader's weak areas. For example, a reader may use "Regression," "Decoding Intonation," and "Repetition" on "Local" and "Clause" level categories (from our Structural Categories) as his effective strategies, and with respect to the "Separate" and "Same Paragraph" Structural Categories, he may use "Omission" and "Substitution." Chapter IV of this book describes instructional approaches that can be used for such a reader.

Other readers may have participated in a miscue interview because the teacher had formulated a question based on less formal observations of the child reading. For example, a question might be, does it matter much that this child regresses a lot and omits words? To answer this question, the teacher/analyst examines the Consequences related to these two kinds of Evidence. It may be that both "Regression" and "Omissions" are powerful strategies used by the child if they regularly

co-occur with miscues coded (+) in the "Meaning" Consequences, including the retelling. Again, the proof of the pudding is in the eating: the patterns that are noticed, with or without prodding by questions, are only worth noticing if they point to an instructional program that can be carried out.

Miscue analysis can be seen as an extension of, and as support for, the main activity of good teachers: learning from the children how to teach them. In its basics, miscue analysis is a way to observe children and to make conclusions from such observations. We have stressed throughout this book that our particular categories are reasonable ones related to what is known about language and reading, *but* they are less valuable to a school reading program than categories that the teachers are committed to and describe in sufficient detail to work with in cloze testing and/or miscue analysis. Categories that emerge from teachers' conceptions of what is important in reading and categories that are refined enough to be used for systematic group or individual testing will actually be the best, because they will allow the integration of the assessment situation with the informal assessment that is a natural part of the regular school day.

5.4. *INTERVIEWING CHILDREN AS A VALIDITY CHECK*

Throughout this book, we have emphasized the importance of the teacher to the success of any assessment program for reading instruction. We do not view teachers simply as test administrators who take directions from an administrator's manual for a cloze test or a miscue test, and we also do not view them as information consumers who interpret results by consulting a table of figures in another manual. Rather, we view teachers as program planners, test constructors, and reading theorists. Now, we would like to expose a complementary view of the student and discuss a procedure that helps make assessment programs better.

When planning an assessment program involving either a group test like the modified cloze test described in the first four chapters or an individual test like the miscue analysis described above in this chapter, it is convenient to develop a fiction about students. We homogenize the student body; we deal with a construct of "a typical test-taker"; we assume the individual student will answer questions in a standard way, sharing with us various expectations about tests, about reading, and about being motivated. All of us have had experiences as test-takers where we have diverged from the norm: we gave an answer to a question that we could justify as correct and at the same time we could see how an alternative answer would be the "more" correct one once we saw it checked off on an official answer sheet. As teachers, we have witnessed similar events involving our students, and often we have had to assume the burden of explaining why one answer is "more correct" than others.

As constructors of tests and as interpreters of test results and as planners for instructional programs, the burden is different. It is necessary to face up to our convenient fiction of the "typical test-taker" and investigate whether it is, in general, an accurate picture of the students taking the test and whether it is, in particular, accurate for individual students. It is, in large part, the accuracy of the fiction that allows us to say that one set of answers by a student means that he can read and another means that he cannot, or that one set of answers means that a child has strength in one reading strategy, whereas an alternative set means the child is weak in terms of that strategy. Without the fiction, or with an inaccurate fiction, the answers mean nothing. For example, when a child chooses a correct answer, rather than one of the incorrect ones, on our multiple choice cloze test, we use our convenient fiction to assume that he is displaying an ability to read and to use a particular reading strategy; in fact, however, the child may have misread both the question and the answer, or he may have guessed, or he may have combined a series of different strategies. A child who chooses an incorrect answer is seen, with the help of our fiction, to be reading badly or not using a particular strategy, but this child, too, may be misrepresented by his answer.

It is up to test-constructors and the interpreters of test results to take steps to insure that the test-takers are not misrepresented. One such step is to make sure that several different questions are used to represent the same skill: since it is unlikely that any accidental reasons for getting an answer right or wrong will be

repeated in several different questions, a sufficient quantity of questions makes it more likely that the student will be represented accurately. Hence, in our cloze test and in our miscue analysis, we gather large quantities of data before we come to conclusions about the students' skills. For a standardized test, a similar step involves the use of statistical measures to investigate the reliability of individual test items and of the test in general.

Another type of step must be taken as well in insuring that test-takers are not misrepresented. For standardized tests, statistical measures of validity are used. For our tests, validity is approached from two viewpoints. First, content validity is claimed because our tests are based on a reasonable view of the reading process (see Chapter I); that is, we have theoretical reasons to believe that our test procedures and test items are able to represent the test-takers' reading ability. Secondly, we can determine whether our tests validly represent the test-taker's reading ability by a direct examination of the accuracy of the convenient fiction of the test-taker as invoked by the test. If the test-takers in general, or any particular test-taker, behave differently than we expected while taking the test, there is reason to question the validity of the test.

Traditional discussions of testing seldom mention the need to investigate the validity of a test in terms of whether or not test-takers are like the fictionalized ideal test-taker assumed by the test. (See, however, Cicourel, 1974, for a discussion from outside the traditional testing literature.) Meier (1973) and Horvath (1977) have published critiques of reading tests showing that some test-takers act unlike the assumed "normal" and that scores on tests do not accurately represent the abilities of these test-takers. The method used by Meier and Horvath can be used to gauge the validity of tests. Basically, the procedure is to ask test-takers to explain their answer choice. In doing so, the test-taker reveals the abilities he called upon to construct the answer. These abilities may be the same as those that the test-constructor assumed the test-taker would use, in which case we would say the item was valid, or the abilities revealed may be different, showing the item, and perhaps the test, to be invalid. Meier stimulated the discussion by test-takers by having several students whose answers differed explain their answers to each other. In some instances, wrong answers that the test assumed revealed a lack of ability were explained in ways that revealed so much ability that students who had chosen supposedly right answers changed their minds and agreed to the wrong answers. In other cases, the abilities revealed to be behind right answers were not the ones the test-constructors assumed to be there.

Meier and Horvath used the technique to question the appropriateness of using certain tests or test items with certain children. Here we suggest that the technique is a basic measure of validity, more useful and plausible than statistical measures, for assessment programs devised in a school setting for that school setting. For the multiple choice cloze test, the teacher, following a pilot run of the test, can identify students whose answers diverged from each other in several items on three or four passages. The teacher then forms groups of students who are comfortable in discussions with each other. Gathering a group of four or five students together in an informal, but quiet, setting, the teacher explains to them why they are there--to help establish whether or not the reading test does its job. The teacher explains and implements the following procedures:

- give each test-taker a copy of the test that they had all taken at an earlier date.
- ask the group to look through the passage and check off the answers again.
- for each test item in turn, tell each student which answer he chose during the test.
- ask the group to figure out what the right answer is, how they know it is right, and what may account for someone choosing a different answer.
- tell them they are expected to take different viewpoints at first (and maybe even at the end) and that it is more important to figure out and explain why an answer was chosen than to choose the correct answer.
- tell them that any differences between the answers they recorded during the test and at the beginning of the group session could provide valuable clues to help explain why an answer might be chosen.

The teacher can tape record the whole session and/or take notes about what is said. The teacher role during the group discussion is to keep the talk on the track of explaining answer choices and to probe to see whether or not the strategy that the test assumed was being tested was, in fact, tested for any or all of the individuals in the group. For instance, if an item is on the test as an instance of the "Same Paragraph" Category (cf. Chapter II), the discussion may reveal that the test-takers actually used information from background knowledge and ignored the clue given elsewhere in the same paragraph. In another case, an item on the test categorized as a "Verbal Noun" (cf. Chapter II) may be involved in a misreading such that the test-takers actually treat it as a verb participle.

On another level, teachers want to note whether students are doing what the convenient fiction expects them to do, given the genre of the test as a multiple choice test and a cloze test. Are the students working with a notion of best possible answer, or are they showing that the convenient fiction of multiple choice is not accurate by choosing the first plausible answer; are the students working with a notion of building a coherent meaning for the whole passage, or are they showing that the fiction of cloze testing is inaccruate by limiting their concern to local syntactic fit of the answer? On still another level, teachers want to note whether students are working within the directions given as part of the test and whether they are motivated, as the fiction expects, to display their best reading skills. Teachers can judge whether individual items (or the whole test) are valid on the basis of these notes.

If the fiction holds at each level (that is, if students' answers are tied to the categories in the test, to the notions related to multiple choice cloze testing, to the directions in the test, and to general expectations about test behavior), then we say the test is valid from this viewpoint. It may be that some items are judged invalid, and the items can be changed on a principled basis; that is, the group session will show how it is that items of a certain type do not accurately represent the reading ability of the test-taker in the way assumed by the test and so items of that type will be omitted from the test. It may be that for a certain type of test-taker, a certain age-group, or students from a particular sub-culture, the test is not valid and should not be used. Using this technique as part of the test-construction procedures provides information important to teachers interested in assessment programs that are valid for their school setting.

Using the technique in relation to miscue analysis involves different procedures but the same general ideas. The teacher again assembles discussion groups of children who are comfortable with each other. Each child in the group has been given the same passage to read in a miscue interview, and the children's performance differed. For instance, the children whose retellings are given in 5.3.2.1.1 and 5.3.2.1.2 above would be good candidates as members of the same group. The teacher again gives the children the original passage, reminds them of their original responses, and asks them to explain to the group the basis for their responses. In the case of the miscue interviewing, the responses to be discussed include the oral reading miscues and the retellings. The teacher is interested in noting whether the categories assigned to the miscues are those that are revealed as students discuss them. On another level, the teacher is interested in noting whether students see the oral reading and the retelling as related to comprehension in the way miscue analysis assumes it to be. On the largest level, issues related to motivation and following directions are the same as those mentioned above in the discussion of the cloze test. Also, the teacher's notes form the basis for judgments of validity.

Aside from providing a basis to argue for the validity of school-created assessment programs, this technique adds to the program an understanding of the student as an active participant in the assessment. While it is necessary to invoke a convenient fiction of the student as test-taker in order to devise tests, it is just as necessary to juxtapose that fiction with the real behavior of students in order to determine where it is inaccruate and, ultimately, to develop tests based upon clear views of the particular test-takers that the assessment program is dealing with. Figuring out what children understand in tests and in educational settings in general is not easy, but it is interesting. (See Mehan et al., 1976, for a description of more general techniques of observation and analysis.) Understanding what it is that

the children understand is, moreover, essential if we are to say their behavior in test situations means that they have particular strengths and weaknesses that guide us in planning a program of instruction.

Appendix A: A Sample Passage

The following passage has the words underlined that are candidates for deletion in the type of cloze test that we constructed. They illustrate the Rules for Deletion given in Chapter II. The words that are omitted (indicated by a numbered blank) illustrate the application of the Structural Category rules in the six cases used for the older students' test. Following the passage, each of the omitted words appears (starred) in a list of distractors chosen according to the principles described in Chapter II, and the list is followed by the name of the Structural Category to which the word has been assigned.

The New House

Mrs. Alexander was trying to fix dinner. First, though, she had to find where the boxes marked for the kitchen had _____(1)_____. The boys had unloaded the station wagon in a hurry and _____(2)_____ back to the old house to get the final load of boxes.

"What's the use," she said aloud. "Put the food in the bedroom. Put the pots and pans in the bathroom. Put the underwear in the refrigerator!" Her voice rose along with her _____(3)_____.

"Mom, I don't have the _____(4)_____. Little Mark looked around at the open boxes. "How come we have to put it in the 'frigerator? Why do we have to do everything different?" Mark started to cry while he talked and peeled _____(5)_____ off boxes. "Can't we have drawers in our bedroom in this house? I don't like new houses. I like old apartments. I can't have my friends, can't ride elevators, can't have drawers for my stuff. And I'm hungry, too. No milk or apples in the 'frigerator in new houses.

Mrs. Alexander had started to laugh when she saw that her five-year-old son had misunderstood her complaint for an order. But, then, seeing how upset he was getting, she _____(6)_____ out her hand and led him out of the kitchen. She stopped looking for the kitchen boxes. Dinner could wait. Mark needed some help to understand that moving wouldn't change everything. "As a matter of fact," she thought, "we can go back to the old neighborhood. Have dinner at the diner near the old apartment. We could stop in and say thanks to everybody who helped us. We can finish unpacking tomorrow."

1. a. passed
   b. burned
   *c. gone
   d. left
   e. held
   (Subordinate Sentence)

2. a. wrote
   b. spread
   c. jumped
   d. paddled
   *e. rushed
   (Conjoined Sentence)

3. a. esteem
   b. prestige
   *c. frustration
   d. appropriation
   e. technique
   (Same Paragraph)

4. a. bucket
   *b. underwear
   c. newspaper
   d. flashlight
   e. soap
   (Separate Paragraph)

5. *a. tape
   b. heat
   c. coffee
   d. thunder
   e. bread
   (Local)

6. a. blew
   b. started
   c. knocked
   *d. held
   e. passed
   (Clause)

In Appendix B which follows are the worksheets we used to construct the tests. It is possible to use the material in Appendices A and B as a workbook. Check the passage and figure out which rules are responsible for making the words that are not underlined ineligible as candidates for deletion. Use the worksheets to complete the test construction on the passage by deleting nine more words, balancing the deletions among the Structural Categories, determining the Parts of Speech Categories and representing them as equally as possible.

Appendix B: Construction Worksheet Samples

Worksheet: Tests for Older Students

Passage Title:

Difficulty Level ____

Structural Categories

Local	Clause	Conjoined S	Subordinate S	Same Paragraph	Separate Paragraph	No Cue

Parts of Speech

	Noun	Noun Head	Verbal Noun	Complement Verb	Participial Verb	Adjective	Complement Adjective	Adverb	Pronoun
Present									
Deleted									

Words Deleted

1. 6. 11.
2. 7. 12.
3. 8. 13.
4. 9. 14.
5. 10. 15.

Worksheet: Tests for Beginners

Passage Title:

Difficulty Level ____

Structural Categories

+2 Repetitions	Clause	Adjacent S	Same Paragraph	Sep. Paragraph	No Cue

Parts of Speech

	Noun	Noun Head	Verb	Complement Verb	Imperative Verb	Adjective	Pronoun
Present							
Deleted							

Words Deleted

(Levels 1-4)

1.
2.
3.
4.

(Levels 1-4)

5.
6.
7.

(Levels 3 and 4 only)

8.
9.
10.

Appendix C: Passages Used in Constructing Our Cloze Tests

Difficulty Level 1 (from *A Duck is a Duck.* Lexington, Mass., Ginn & Co., 1976, pp. 66-72)

Duck said, "Look at me!
Look at me, Rabbit.
I CAN SWIM.
What can you do?
Can you swim, Rabbit?"

Rabbit said, "Look at me!
Look at me, Duck.

I CAN HOP.
I CAN HOP FAST.

Can you do this?
Can you hop, Duck?"

Duck said, "I can't hop.
I can swim, but I can't hop.
I don't want to swim.

I want to hop, Rabbit.
You can hop fast.
I want to hop like a rabbit."

Rabbit said, "Help me!
I want to swim, but I can't.
I can hop, but I can't swim.
You can swim, Duck.
Help me swim."

Difficulty Level 2 (from *A Little Tugboat Like You and Me.* New York, Harper & Row, 1972, pp. 22-25)

"What are we going to do?"
says Adam.

"Look at ships," says David.
"I like to see ships come and go.
You will, too!"
"David, look here," says Adam.
"Look at that big ship.
A little ship is going to it."

"Yes, I see," says David.
"The big one is a ship.
The little one is a tugboat.
Not a ship."
"What can a tugboat do?"
says Adam.

"You will see," says David.
"The tugboat is going to the ship.
It will get the ship home."
"I get it," says Adam.
"Here comes the tugboat.
The ship is with it.
The ship is going home."

"Yes," says David.
"Home for a ship is a dock.
Look, here comes Pedro."

Difficulty Level 3 (from *May I Come In*. Lexington, Mass., Ginn & Co., 1976, pp. 208-211)

In the Spring a bunny
came down the road.
He was going to find
a home of his own.
A home for a bunny,
A home of his own,
Under a rock,
Under a stone,
Under a log,
Or under the ground.
Where would a bunny find a home?
"Where is your home?"
he asked the robin.
"Here, here, here,"
sang the robin.
"Here in this nest is my home."
"Here, here, here,"
sang the little robins.
"Here is our home."
"Not for me," said the bunny.
"I would fall out of a nest.
I would fall on the ground."

Difficulty Level 4 (from *The Dog Next Door*. Lexington, Mass., Ginn & Co., 1976, pp. 105-107)

The sun goes down and night will come soon.
Wild animals come softly from the woods.
They come to the pond to drink.

Two beavers swim across the pond.
It is time for them to go to work.

Beside the water are many young trees.
The beavers climb out of the water.
Each picks a young tree. And each stands
on its back legs and leans on its wide, flat tail.

They chew the bark of all the young trees.
As they chew, chips fall to the ground.
The beavers chew almost through the trees.

A tree leans.

It leans a little more. Whack!

A beaver's tail hits the ground.
This is the beaver's way of saying DANGER.

One of the young trees is about to fall,
and the beavers hurry away from the falling tree.
They hurry to the pond and dive deep down
into the water away from danger.

Difficulty Level 5 (from *Traveling the Trade Winds*, Level 13, Unit 1. New York, Harper & Row, 1972, p. 41)

"Bears are hungry and cross at this time of year; you know they have been sleeping in their dens all winter long with nothing to eat, and that makes them thin and angry when they wake up. I did not want to meet one.

"I hurried along as quick as I could in the dark. By and by the stars gave a little light. It was still black as pitch where the woods were thick, but in the open places I could see, dimly. I could see the snowy road ahead a little way, and I could see the dark woods standing all around me. I was glad when I came into an open place where the stars gave me this faint light.

"All the time I was watching, as well as I could, for bears. I was listening for the sounds they make when they go carelessly through the bushes.

"Then I came again into an open place, and there, right in the middle of my road, I saw a big black bear."

Difficulty Level 6 (from *Inside Out*. Lexington, Mass., Ginn & Co., 1976, pp. 260-262)

Once upon a time, when the earth and sky were new, there lived seven little brothers. They loved to play and dance in the forest, and no matter where they went, they always went there together.

One evening as they were returning from the forest, they heard from far, far away the sound of someone singing. The song was not like any song they had ever heard before. It was so beautiful and mysterious the seven brothers completely forgot about going home. Instead they danced off in the direction of the song.

As the little boys danced, their feet seemed to grow lighter. Suddenly night came. Then, before long, they could see the forest and the houses of their people stretched out far below them in the moonlight. They saw that they were dancing right up in the sky. Higher and higher they danced, and the song grew louder. Still higher they danced, and the song grew louder and sweeter still.

"I came," sang the sweet voice, "for a hunter chased me, and now I am lost in the sky. But sleep, my little ones, in your warm dark cave. I will watch over you here in the sky."

Difficulty Level 7 (from *From Near and Far*, Level 11, Unit 7, 1972, pp. 262-263)

Kobi put on his big outdoor shoes, for he must milk the cow before he could eat any breakfast. Down to the kitchen he went, two steps at a time. If Mother had been stone deaf, she still could have heard him coming.

Father was through milking, but Kobi could hear Grandfather singing in the barn. Grandfather had his own cow, and Kobi had his. Grandfather's cow was stubborn and did not give down her milk easily. Grandfather sang the same song to her each milking time. He said that she milked more easily then.

Kobi took a wooden milk bucket from the kitchen table and opened the door into the barn. The barn was like another room fastened onto the kitchen. Grandfather stopped singing.

"Slowpoke," he called jokingly. "I'm almost through milking. Gurt thought that you were never coming."

Difficulty Level 8 (from *Traveling the Trade Winds*, Level 13, Unit 4. New York, Harper & Row, 1972, p. 261)

People of early civilizations built roads of a sort, but the first good road builders were the Romans. They built the first network of hard-surfaced roads. The Romans began their road building about 300 B.C. and continued for about five hundred years.

Roman roads were good because the people knew how to lay a solid, thick base. On top of this they put a pavement of flat stones. Their roads were a bit higher in the center than on the sides. Along the sides ran ditches so that the water could run off. These roads were also famous for their straightness. They went over most of the hills instead of around them.

The Roman roads were used mainly by soldiers. At first these roads went just through Italy. Then, as the Roman Empire spread, roads were built in other countries of Europe. In all they laid about 50,000 miles of roads. Some parts of the Roman roads are still in use.

Difficulty Level 9 (from *Traveling the Trade Winds*, Level 13, Unit 1. New York, Harper & Row, 1972, pp. 28-30)

Practice time ended. A voice gave the Tiger line-up over the loudspeaker. The batting order for the team from Florida was given.

The umpire-in-chief went to the home plate. The base umpires took their places behind first and third base. The umpire at home plate dusted off the base. He straightened and tossed a ball toward the mound.

"Play ball!" the umpire cried.

The Tigers ran on the field shouting to each other. They shouted encouragement to Jerry who would pitch today.

The first Florida batter waited out Jerry. The first two pitches were balls. Then there were two strikes. The boy from Florida swung on the fifth pitch. It was a sharp hit toward Johnny!

Johnny did not stop to think. There was no time to think. His short legs carried him across the grass. He pushed his glove out and the ball hit the pocket. Johnny's throw to Speck was a good one. It beat the runner by four steps.

"That's the way to grab that old ball, Johnny," Speck cried. "Told you that you had the stuff!"

Difficulty Level 10 (from *Traveling the Trade Winds*, Level 13, Unit 6. New York, Harper & Row, 1972, pp. 407-408)

In the year 1900, while hunting in northern Asia, a Russian stumbled over the body of a huge animal. The creature was frozen in the ice with only its head sticking out. The animal was far too big for the man to dig out or move himself. Instead, he axed off the tusks and took them to the nearest trading post to sell.

The manager there bought the tusks and then asked about the rest of the beast. From what the hunter told him, the man recognized it as a mammoth, a kind of elephant that had died out about 10,000 years ago. According to Russian law, all mammoth and other frozen animal discoveries were to be reported to the government. The hunter did this, and a group of scientists was sent to the spot.

The men put up a wooden building around the body. Then they lighted fires to thaw out the beast. Finally they packed up the parts, refroze them in the cold air, and shipped them by sled to the railroad station. Later the animal would be mounted in a Russian museum. Though mammoths had been found before, this was a most unusual discovery. The scientists knew that they had a real mystery on their hands.

Difficulty Level 11 (from *Mountains Are for Climbing*. Lexington, Mass., Ginn & Co., 1976, p. 62)

There were a few things in the cupboard, mostly staples. A pan of cold cornmeal sat on the sink left over from breakfast. Sam Joe fried this in grease, turned it out on a piece of bread and spread peanut butter on top. He liked odd food combinations, his favorite being potatoes and honey cooked up in any manner.

With the edge taken off his hunger he set about making a fire in the potbellied wood stove that was their heat source. While the fire caught he peeled five potatoes to make into a soup. This he would sweeten with a big dollop of honey, and it would fill him up until breakfast.

He sat down on a kitchen chair and leaning back stretched his legs out with his boots on top of the stove. A box of hazel nuts dried behind the stove, and seeing them turned his thoughts to summer and the good times he had with Billy Joe. They knew every bit of the country for miles around, had tramped around in it first as small boys looking for adventure, and now as fishermen and the big hunters they fancied themselves to be. Sam Joe knew he was going to be a good hunter; he had all the natural instincts of patience, stealth, and interest in the habits of animals.

Difficulty Level 12 (from *The Innocent Voyage*. New York, Penguin Books, 1929, p. 31)

John was the only one who could remember England. What he remembered was sitting at the top of a flight of stairs, which was fenced off from him by a little gate, playing with a red toy milk-cart: and he knew, without having to look, that in the room on the left Baby Emily was lying in her cot.

They all had nevertheless most elaborate ideas about England, built up out of what their parents had told them, and from the books and old magazines they sometimes looked at. Needless to say it was a very Atlantis, a land at the back of the North Wind: and going there was about as exciting as it would be to die and go to Heaven.

John told them all about the top of the stairs for the hundredth time as they drove along; the others listening attentively (as the Believing do to a man remembering his reincarnations).

Suddenly Emily recalled sitting at a window and seeing a big bird with a beautiful tail. At the same time there had been a horrid screeching going on, or perhaps something else disagreeable--she could not quite remember which sense was offended. It did not occur to her that it was this selfsame bird which had screeched:

Difficulty Level 13 (from *Measure Me Sky*. Lexington, Mass., Ginn & Co., 1976, pp. 60-61)

Clay gagged, with the salt water strangling him. Then he managed a gasp of air. There was a churning foam all around and before he could truly catch his breath, he was snatched up into another giant, curving wave. Hurled to the bottom. Up to the top again. Gasping, choking. A little air for the lungs. Then up and over and down again. And again. And again, until he was sure each next one would truly finish him. The nightmare of the whirling sea was endless.

One particular thrust of water, more vicious than the rest, crashed him against the sand with such force he blacked out for a moment and then was conscious only enough to be aware that he lay on his back looking up from the pale depths as the water sheeted away, slipping back to the sea. Thus miraculously he found he could breathe air instead of gulping salt water. With gigantic effort he turned over, found himself on his hands and knees in the thin surf of the shore. Before he could struggle to his feet another wave rushed upon him. But it was gone in a moment and Clay found himself standing, staggering, slipping, falling, standing again, moving up the flat of the beach. There he collapsed.

Difficulty Level 14 (from *Focus*. Glenview, Ill., Scott, Foresman & Co., 1969, 330)

I was lost.

In that instant of realization all my strength seemed to ooze out of me. Then panic came upon me. I had a senseless, almost uncontrollable impulse to dash madly through the trees, regardless of direction, bears, or anything else. But I got hold of myself, decided on a course, and with forced calmness went forward, watching tensely for that breaking away of the timber which foretells an approach to the sea.

Every step took me deeper into the darkening wilderness. There was no wind. Not a thing moved except myself--not a leaf, not a twig.

The very silence began to frighten me. I found myself stepping furtively, trying not to make any noise, and straining to hear the slightest sound. I kept glancing back over my shoulder. Every few feet I'd stop suddenly, holding my breath while I studied a moss-grown log or the long arm of a thorny shrub which I was sure had stirred a second before.

I was groping with my feet, my gaze fixed ahead, when out of the tail of my eye I saw a blurred stirring in the shadows under hemlocks. I jerked my head around to look.

Nothing moved.

I wondered if the "woods-madness" that seizes lost persons was coming upon me so soon.

Difficulty Level 15 (from *Treasure Island*. New York, Dodd, Mead & Co., 1956, pp. 277-278)

The first of the tall trees was reached, and by the bearing, proved the wrong one. So with the second. The third rose nearly two hundred feet into the air above a clump of underwood; a giant of a vegetable, with a red column as big as a cottage and a wide shadow around in which a company could have maneuvered. It was conspicuous far to sea, both on the east and west, and might have been entered as a sailing mark upon the chart.

But it was not its size that now impressed my companions, it was the knowledge that seven hundred thousand pounds in gold lay somewhere buried below its spreading shadow. The thought of the money, as they drew nearer, swallowed up their previous terrors. Their eyes burned in their heads; their feet grew

speedier and lighter; their whole soul was bound up in that fortune, that whole lifetime of extravagance and pleasure, that lay waiting there for each of them.

Silver hobbled, grunting, on his crutch; his nostrils stood out and quivered; he cursed like a madman when the flies settled on his hot and shiny countenance; he plucked furiously at the line that held me to him, and, from time to time, turned his eyes upon me with a deadly look.

Difficulty Level 16 (from *Spanning the Seven Seas*. New York, Harper & Row, 1972, p. 385)

With so much water on the earth it seems impossible that a time will come when there may not be enough to drink or use for irrigation. Yet the United States faces this problem right now, and it is even more serious in densely populated countries. Experts say that unless a new source of fresh water is made available, filtration systems will have to be perfected so that the present water can be used over and over again.

The reason that there is so much water and yet not enough is because the sea is salty. Salt water cannot be used for drinking or irrigating. If, however, a way could be found to desalt ocean water, there would be fresh water to drink and barren deserts could be turned into productive farms and forests.

Many companies and research laboratories are working on this problem. Several methods of desalting water have already been discovered, but the search continues for a way that is both inexpensive and practical. When such a method is in common use, think how beautiful the world will become!

Salt is not the only substance dissolved in the World Ocean, though it is the most common, making up about eighty-five per cent of the seas' minerals. Other useful elements are also there.

Difficulty Level 17 (from *Perspectives*. Glenview, Ill., Scott, Foresman & Co., 1969, pp. 243-244)

On a windswept, mile-and-a-half-long island only fifty-four miles from Halifax, Nova Scotia, lies one of the world's most famous buried treasures. More than a million dollars has been spent in attempts to penetrate the 160-foot pit where submerged wooden chests, believed to be full of precious metal and coins, await someone with the engineering genius to wrest them from the ground.

After a company had raised capital to buy equipment and hire labor, the work on Oak Island began in earnest.

From the chain links and pieces of wood brought to the surface, the company's engineer deduced that the treasure-trove consisted of several oaken chests and casks, each brimming with metal in various forms. But seventy-five feet of water still separated them from the hoard.

Since the water in the pits was salty, the diggers reasoned that an underground tunnel must connect the two shafts with the ocean. Further exploration did, in fact, uncover a fan-shaped entrance with five intakes at Smith's Cove, 460 feet from the pit. The intakes drained into a central tunnel which led to the treasure shaft.

In an effort to detour this tunnel, a 118-foot shaft was sunk on the southern side. Now hopes for success were high. But water pressure in the tunnel was so strong it collapsed this shaft, and the bottom of the money pit fell in. Back to Nova Scotia went the second Oak Island treasure company, bankrupt and beaten.

Difficulty Level 18 (from *Types of Literature*. Lexington, Mass., Ginn & Co., 1975, p. 299)

During my association with Model T's, self-starters were not a prevalent accessory. They were expensive and under suspicion. Your car came equipped with a serviceable crank, and the first thing you learned was how to Get Results. It was a special trick, and until you learned it (usually from another Ford owner, but sometimes by a period of appalling experimentation) you might as well have been winding up an awning. The trick was to leave the ignition switch off, proceed to the animal's head, pull the choke (which was a little wire protruding through the radiator) and give the crank two or three nonchalant upward lifts. Then, whistling as though thinking about something else, you would saunter back to the driver's cabin, turn the ignition on, return to the crank, and this time, catching it on the down stroke, give it a quick spin with plenty of That. If this procedure was followed, the engine almost always responded--first with a few scattered explosions, then with a tumultuous gunfire, which you checked by racing around to the driver's seat and retarding the throttle. Often, if the emergency brake hadn't been pulled all the way back, the car advanced on you the instant the first explosion occurred and you would hold it back by leaning your weight against it.

Difficulty Level 19 (from *Introduction to Literature*. Lexington, Mass., Ginn & Co., p. 7)

It was like the many pictures I had seen, and at the same time utterly unlike them. The shape was there, and the familiar distinguishing features, the sweeping skirt of glaciers, the monstrous vertical precipices of the face and the jagged ice line of the east ridge, finally the symmetrical summit pyramid that transfixed the sky. But whereas in the pictures the mountain had always seemed unreal--a dream-image of cloud, snow and crystal--it was now no longer an image at all. It was a mass: solid, palpable, appalling. We were still too far away to see the windy whipping of its snowplumes or to hear the cannonading of its avalanches, but in that sudden silent moment every man of us was for the first time aware of it not as a picture in his mind, but as a thing, an antagonist. For all its twenty-eight thousand feet of lofty grandeur it seemed, somehow, less to tower than to crouch--a white-hooded giant, secret and remote, but living. Living and on guard.

I turned my eyes from the dazzling glare and looked at my companions. Osborn still stood a little in front of the others. He was absolutely motionless, his young face tense and shining, his eyes devouring the mountain. One could feel in the very set of his body the overwhelming desire that swelled in him to act, to come to grips, to conquer.

Difficulty Level 20 (from *A Portrait of the Artist as a Young Man*. New York, Viking Press, 1956, p. 66)

Dublin was a new and complex sensation. Uncle Charles had grown so witless that he could no longer be sent out on errands and the disorder in settling in the new house left Stephen freer than he had been in Blackrock. In the beginning he contented himself with circling timidly round the neighbouring square or, at most, going half way down one of the side streets; but when he had made a skeleton map of the city in his mind he followed boldly one of its central lines until he reached the Custom House. He passed unchallenged among the docks and along the quays wondering at the multitude of corks that lay bobbing on the surface of the water in a thick yellow scum, at the crowds of quay porters and the rumbling carts and the illdressed bearded policeman. The vastness and strangeness of the life suggested to him by the bales of merchandise stocked along the walls or swung aloft out of the holds of steamers wakened again in him the unrest which had sent him wandering in the evening from garden to garden in search of

Mercedes. And amid this new bustling life he might have fancied himself in another Marseilles but that he missed the bright sky and the sunwarmed trellisses of the wineshops. A vague dissatisfaction grew up within him as he looked on the quays and on the river and on the lowering skies and yet he continued to wander up and down day after day as if he really sought someone that eluded him.

Difficulty Level 21 (from *Understanding Literature*. Lexington, Mass., Ginn & Co., 1975, p. 357)

The impatient child in Schliemann was always stronger than the cool-brained archaeologist. He had tried hard to find what he wished to find, and now, after three arduous years, it seemed that his faith had been justified. Without pausing to check his deductions, or to consult the opinions of other scholars, he announced to the world that he had discovered the Scaean Gate and the Palace of Priam.

Many of the professional scholars, particularly the Germans, had been opposed to Schliemann's excavations. For more than a century they and their predecessors had theorized, from the depth of their study chairs, over the probable site of Troy; but not one had gone out to dig there. And now, here was this audacious merchant, without academic training, a lover of publicity, hasty and inexact in his methods, ruthlessly tearing down the remains of classical buildings in an insane search for a city which had probably never existed outside a poet's imagination. Worst of all, his naive belief in the historicity of Homer had led him to announce that he had found the Palace of Priam--a King for whose historical existence there was not a shadow of proof! This was not scholarship, but sensational journalism. Academic pens were dipped in acid.

Difficulty Level 22 (from *Introduction to Literature*. Lexington, Mass., Ginn & Co., 1975, pp. 26-27)

IN COMPLIANCE with the request of a friend of mine, who wrote me from the East, I called on good-natured, garrulous old Simon Wheeler, and inquired after my friend's friend, Leonidas W. Smiley, as requested to do, and I hereunto append the result. I have a lurking suspicion that *Leonidas W.* Smiley is a myth, that my friend never knew such a personage, and that he only conjectured that if I asked old Wheeler about him, it would remind him of his infamous *Jim* Smiley, and he would go to work and bore me to death with some exasperating reminiscence of him as long and as tedious as it should be useless to me. If that was the design, it succeeded.

I found Simon Wheeler dozing comfortably by the barroom stove of the dilapidated tavern in the decaying mining camp of Angel's, and I noticed that he was fat and bald-headed, and had an expression of winning gentleness and simplicity upon his tranquil countenance. He roused up, and gave me good day. I told him a friend of mine had commissioned me to make some inquiries about a cherished companion of his boyhood named *Leonidas W.* Smiley--*Rev. Leonidas W.* Smiley, a young minister of the Gospel, who he had heard was at one time a resident of Angel's Camp.

Difficulty Level 23 (from *Major Writers of America*. New York, Harcourt Brace and World, 1966, p. 90)

His school-house was a low building of one large room, rudely constructed of logs; the windows partly glazed, and partly patched with leaves of old copy-books. It was most ingeniously secured at vacant hours by a withe twisted in the handle of the door, and stakes set against the window-shutters; so that, though a thief might get in with perfect ease, he would find some embarrassment in getting out: an idea most probably borrowed by the architect, Yost Van Houten, from the mystery of an eel-pot. The school-house stood in a rather lonely but pleasant situation, just at the foot of a woody hill, with a brook

running close by, and a formidable birch-tree growing at one end of it. From hence the low murmur of his pupils' voices, conning over their lessons, might be heard in a drowsy summer's day, like the hum of a bee-hive; interrupted now and then by the authoritative voice of the master, in the tone of menace or command; or, peradventure, by the appalling sound of the birch, as he urged some tardy loiterer along the flowery path of knowledge.

Difficulty Level 24 (from *Joseph Andrews*, Volume 1. New York, Rinehart & Co., 1948, pp. 226-227)

I have often wondered, sir, said Joseph, to observe so few instances of charity among mankind; for though the goodness of a man's heart did not incline him to relieve the distress of his fellow-creatures, methinks the desire of honour should move him to it. What inspires a man to build fine houses, to purchase fine furniture, pictures, clothes, and other things, at a great expense, but an ambition to be respected more than other people? Now, would not one great act of charity, one instance of redeeming a poor family from all the miseries of poverty, restoring an unfortunate tradesman by a sum of money to the means of procuring a livelihood by his industry, or any such-like example of goodness, create a man more honour and respect than he could acquire by the finest house, furniture, pictures, or clothes, that were ever beheld? For not only the object himself, who was thus relieved, but all who heard the name of such a person must I imagine, reverence him infinitely more than the possessor of all those other things; which, when we so admire, we rather praise the builder, the workmen, the painter, the lace-maker, the tailor, and the rest, by whose ingenuity they are produced, than the person who by his money makes them his own.

Difficulty Level 25 (from *Research in Psychology*. Glenview, Ill., Scott, Foresman & Co., 1970, pp. 119-120)

Equality of opportunity and social mobility are not unidimensional but are pluridimensional. They should not be envisaged solely in terms of individuals becoming members of wealthier classes or of less privileged groups. The diversity of human abilities cannot be accommodated in so simple a model. What is significant to a biologist is the fact that people not only rise upward or fall downward on a scale of social status and emoluments but also choose among a great variety of occupations. Man's outstanding evolutionary adaptation is his trainability and behavioral plasticity; most people can become competent in any one of many vocations and employments. This does not preclude the existence of genetically conditioned aptitudes, preferences, and special abilities. And it is a reasonable generalization to say that people do best in what they find congenial and where they feel they are most likely to pass muster. A practical recognition of the diversity of abilities can be seen in the fact that between 150 and 250 million standardized aptitude tests of various types are now administered per year in the United States. Although the usefulness of these tests has been questioned, they are apparently here to stay.

Difficulty Level 26 (from *Moby Dick*. New York, Random House, 1950, p. 202)

First: I have personally known three instances where a whale, after receiving a harpoon, has effected a complete escape; and, after an interval (in one instance of three years), has been again struck by the same hand, and slain; when the two irons, both marked by the same private cypher, have been taken from the body. In the instance where three years intervened between the flinging of the two harpoons; and I think it may have been something more than that; the man who darted them happening, in the interval, to go in a trading ship on a voyage to Africa, went ashore there, joined a discovery party, and penetrated far into the interior, where he travelled for a period of nearly two years, often endangered by serpents, savages, tigers, poisonous miasmas, with all the other common perils incident to wandering in the heart of unknown regions. Meanwhile, the

whale he had struck must also have been on its travels; no doubt it had thrice circumnavigated the globe, brushing with its flanks all the coasts of Africa; but to no purpose. This man and this whale again came together, and the one vanquished the other.

Difficulty Level 27 (from *Research in Psychology*. Glenview, Ill., Scott, Foresman & Co., 1970, p. 217)

My efforts stimulated another exploratory attempt by my colleague William Cumming of Columbia University who trained pigeons to inspect various objects. In the demonstration apparatus, developed by the researchers, capsules were coded as to whether they were acceptable or skags (unacceptable capsules). In this way an automatic programing (relay) circuit could set up and enforce the appropriate discriminatory behavior of the birds. However, on ar actual inspection line, this aspect of the training procedure could no longer be maintained. There would be no way of knowing which capsules are skags except by actual inspection.

One possible solution is simple from a purely mechanical point of view, and it also is of definite theoretical or philosophical interest.

Briefly, it would involve the use of a minimum of two animals to simultaneously inspect each object. Initially, each animal would be trained to inspect capsules by using a training apparatus such as the one I had already constructed. In this apparatus all the capsules would be labeled as to whether they were skags or not and thus control the reward circuit.

After the desired disciminatory performance was well established the two experimental birds would be removed to the on-line inspection situation. From then on the birds would only be rewarded if they *both* agreed on whether a particular object was a skag or not. Such an agreement-contingency setup would most probably be quite adequate to maintain the desired behavior.

Difficulty Level 28 (from *Anthropology*. New York, Harcourt Brace, 1948, p. 249)

It does not follow that because social usages largely fail to spring out of purposive and deliberate reasoning, they are therefore unworthy of being followed, or that standards of conduct need be renounced because they are relative--that is, unconsciously founded and changing. The natural inclination of men being to regard their standards of taste, behavior, and social arrangement as reasonable, perfect, and fixed, there follows a first inclination to regard these standards as devalued as soon as their emotionality and variability have been recognized. Such a negative reaction is disappointing: it is a further result of the illusion. Once the fundamental and automatic assumption of fixity and inherent value of social patterns has been given up, and it is recognized that the chief motive power of behavior in man as in the other animals is affective and unconscious, there is nothing in institutions and codes to quarrel with. They are neither despicable nor glorious; no more deserving, in virtue of their existence, to be uprooted and demolished than to be defended as absolute and eternal. In some form or other, they are inevitable; and the particular form they take at this time or that place is always tolerably well founded, in the sense of being adapted with fair success, or having been but recently well adapted, to the conditions of the natural and social environment of the group which holds the institution, code, or standard.

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The books and articles referenced in this book are arranged here according to topics which reflect their content. Due to the rather unique arrangement of the book and our suggestions as to its use (see Introduction), it was felt that a topical bibliography would be of significantly greater usefulness than a straight alphabetical listing.

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